Reference Series
1210a
1211a

1 CHANNEL POWER AMPLIFIER

SERVICE MANUAL

Infinity Systems, Inc.
250 Crossways Park Dr.
Woodbury, New York 11797

Rev2 10/2005

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Reference 1210a/1211a Specifications

Output Power:	854W RMS x 1 @ 4 ohms; ≤1% THD + N
(14.4 VDC)	1300W RMS x 1 @ 2 ohms; ≤1% THD + N
Signal-to-noise ratio:	72dBA (reference 1W into 4 ohms)
Dynamic power:	1516W channels @ 2 ohms
Effective damping factor:	6.357 @ 4 ohms
Frequency response:	17Hz – 302Hz (-3dB)
Maximum input signal:	5.7V
Maximum sensitivity:	Reference 1210a - 260mV
	Reference 1211a - 75mV
DC Offset	<50mV (-50%)
Output regulation:	.132dB @ 4 ohms
Idle Current	2.8A
Input Impedance	22kΩ
Max Current Draw	70A @ 4 ohms
	125A @ 2 ohms
Dimensions:	12 x 18 1/2 x 2 11/16” (L x W x D)
	(305mm x 470mm x 68mm)
Fuse:	3 x 40A

Infinity continually strives to update and improve existing products, as well as create new ones. The specifications and details in this and related JBL publications are therefore subject to change without notice.

Features

- 1-Channel Operation
- Advanced MOSFET Oversized Floating Rail Power Supply
- Floating Ground Factory - Head - Unit Speaker - Level input
- Variable Input Sensitivity (250mV - 6V)
- Fully Complementary Output Stage with Class-D Voltage Amplification
- Gold-plated Power, Input and Output Connectors
- 2-Ohm Stable

Test Conditions and Notes

- All tests to be done, unless otherwise specified, from 10Hz to 302Hz at 14.4V DC into 2 ohm loads and adjust the units gain so that with a .250 volt input signal the unit is at Its maximum rated output. All measurements will be done using an Audio precision system one and the supply voltage.

- An A+ line voltage of 14.4V DC shall be applied to the unit under test for all measurements unless otherwise specified. The voltage applied to the unit shall be measured at the power connection on the Amplifier.

- Signal Source
  Unless otherwise specified, all tests shall be conducted with the Audio Signal Generator output configured to be balanced, less than or equal to 50 ohm source impedance, and floating. The signal source "GND" shall be connected to the Amplifier PWR GND at the Amplifier.

- Output Load
  Unless otherwise specified, all tests shall be conducted with 2 ohm resistive loads having less than 10% reactive components at any frequency below 302Hz. Each resistor shall have a value that remains within 1 % while dissipating the rated output of the unit under test.

- Power Indicator Green LED steadily illuminates for normal operation. Illuminates up Red LED blinks when protection circuitry is engaged, and during power up.

Power Connections

The Reference amplifiers are capable of delivering high power levels, and require a reliable connection to the vehicle's electrical system in order to perform optimally. See Figure 1 for connection location. Please adhere to the following instructions carefully.

GROUND CONNECTION
Connect the amplifier's Ground (GND) terminal to a solid point on the vehicle's metal chassis, as close to the amplifier as possible. Refer to the chart below to determine minimum wire-gauge size. Sand away any paint from this location; use a star-type-lock washer to secure the connection.

POWER CONNECTION
Connect a wire (see chart at right for appropriate gauge) directly to the vehicle's positive battery terminal, and install an appropriate fuse holder within 18" of the battery terminal. Do not install the fuse at this time. Route the wire to the amplifier's location, and connect it to the amplifier's positive (+12V) terminal. Be sure to use appropriate grommets whenever routing wires through the firewall or other sheet metal. Failure to adequately protect the positive wire from potential damage may result in a vehicle fire. When you are done routing and connecting this wire to the battery and to the amplifier, you may install the fuse at the battery. The fuse value should be selected based on total amplifier-current draw; see chart at right.

REMOTE CONNECTION
Connect the amplifier's Remote (REMOTE) terminal to the source unit's Remote Turn-On lead using a minimum of 18-gauge wire. If your source unit does not have a remote turn-on connection, connect the amplifier's (REMOTE) terminal to the vehicle's accessory circuit.

WIRE-GAUGE CHART

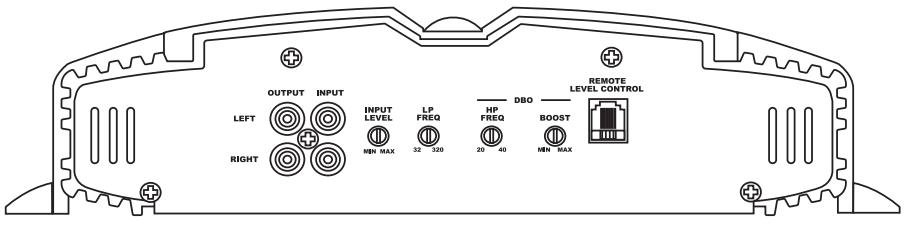
Amplifier Model	Maximum Current Draw	Minimum Wire Gauge
1210a/1211a	115A	#4 AWG

These recommendations assume 7' – 10' wire runs. If your installation differs markedly, you will need to adjust the wire gauge accordingly.

SPEAKER CONNECTIONS
Refer to the application guides on the pages that follow. Speaker connections should be made using a minimum of 16-gauge wire.

NOTE: When using the low-level or high-level inputs, the AUX outputs can be used to pass a full-range line-level signal to another amplifier.

Figure 1. Terminal-connection end plate.



Applications – 1201a/1211a

The Reference subwoofer amplifiers are single-channel amplifiers. There are two sets of terminals to make it easy to connect multiple woofers. Either set of (+/–) terminals may be used when connecting woofers.

To the right are two application diagrams to help plan your subwoofer system installation. Figures 3 and 4 show how to configure the Reference subwoofer amplifiers (models 311a, 611a and 1211a).

NOTE: For simplicity, Figures 3 and 4 do not show power, remote and input connections.

NOTE: Minimum speaker load is 2 ohms.

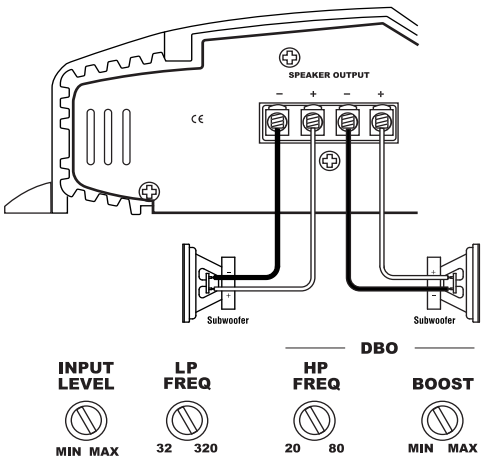


Figure 3. Reference subwoofer amplifier with two woofer connections.

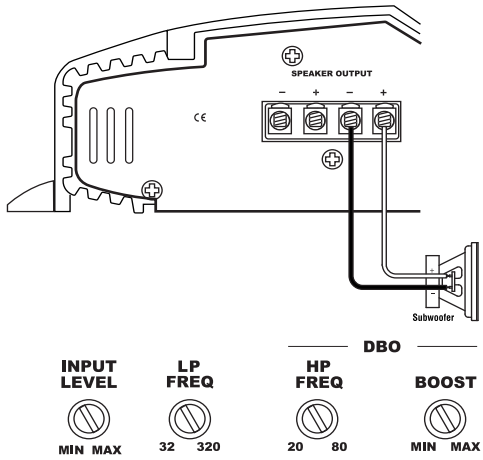


Figure 4. Reference subwoofer amplifier with one woofer connection.

SETTING INPUT SENSITIVITY

1. Initially turn the INPUT LEVEL control(s) to minimum (counterclockwise).
2. Reconnect the (–) negative lead to the vehicle's battery. Apply power to the audio system and play a dynamic music track.
3. On the source unit, increase the volume control to 3/4 volume. Slowly increase the INPUT LEVEL control(s) toward three o'clock until you hear slight distortion in the music. Then reduce the INPUT LEVEL slightly until distortion is no longer heard.

NOTE: After the source unit is on, blue LEDs (on the top panel) will light, indicating the amplifier is on. If not, check the wiring, especially the remote connection from the source unit. Also refer to "Troubleshooting" on page 7.

REMOTE LEVEL CONTROL (OPTIONAL)

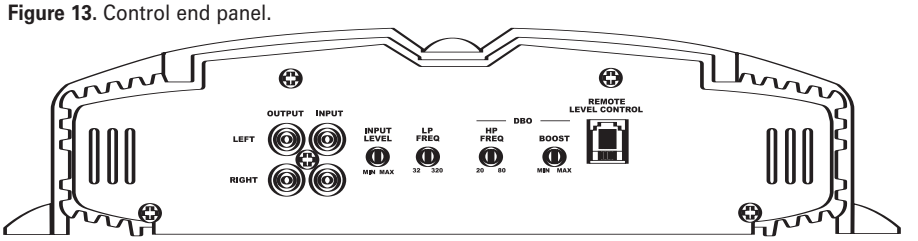
All three Reference subwoofer amplifiers and the 5761a amplifier have inputs for an optional remote level control (100rc). This will allow the subwoofer level to be adjusted from the listening position. Connect the optional remote level control using the RJ-11 jack on the side of the amplifier. Install the control module in the front of the vehicle within easy reach of the driver. Both the underside of the dash and the center console are suitable locations. Refer to the mounting instructions accompanying the 100rc.

AUX OUTPUT

Reference amplifiers (except 5761a) are equipped with full-range outputs that can be used to connect additional amplifiers.

NOTE: When using the low- or high-level inputs, the AUX outputs can be used to pass a full-range line-level signal to another amplifier.

Figure 13. Control end panel.



Installation and Setup (cont.)

SETTING DBO™
The Dynamic Bass Optimizer (DBO) is used to enhance low-frequency reproduction in a vehicle. Conventional bass-boost circuits only increase bass at a fixed frequency, and cause the amplifier to consume considerable power. The DBO allows you to adjust the frequency (20Hz – 80Hz) as well as the boost level (up to 12dB; see Figure 14), allowing you to fine-tune the bass in your system to optimize performance.

For sealed enclosures, the DBO can be used to enhance the lower bass region of sealed enclosures.

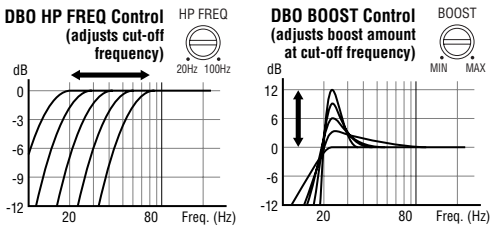
For bigger/fuller bass, adjust the HP FREQ between 35Hz and 45Hz; adjust the BOOST control according to your preference.

For tighter-sounding bass, adjust the HP FREQ between 45Hz and 55Hz; adjust the BOOST control according to your preference.

For vented enclosures, the DBO should be used as a subsonic filter to reduce overexcursion of the woofers. Set the HP FREQ control 10Hz below the tuning frequency of the enclosure (e.g., 25Hz for a box tuning of 35Hz); adjust the BOOST control to taste. This will conserve amplifier power typically wasted on frequencies below the tuned frequency of the enclosure.

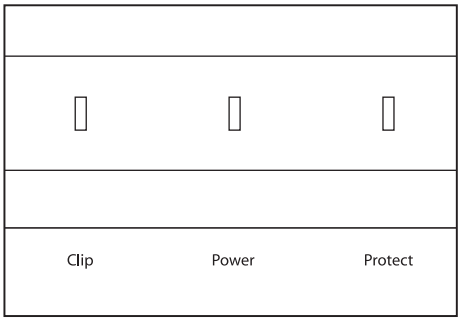
For infinite-baffle applications, set the HP FREQ to the speaker's Fs value (reducing overexcursion of the woofer); adjust the Boost control to taste.

Figure 14. Frequency-response curves show typical DBO control ranges.



STATUS LEDs
Clip: Indicates the amplifier is being overdriven, and your speakers may be in danger. This should blink only on musical peaks, and not be on constantly.
Power: Indicates the amplifier is on.
Protection: Refer to "Troubleshooting" for specific indications.

Figure 15. LED status.



TROUBLESHOOTING

- **PROBLEM:**
  No audio (POWER LED is off).

  CAUSE and SOLUTION:
  No voltage at BATT+ and/or REM terminals, or bad or no ground connection. Check voltages at amplifier terminals with VOM.

- **PROBLEM:**
  No audio (PROTECT LED flashes every 4 seconds).

  CAUSE and SOLUTION:
  DC voltage on amplifier output. Amplifier may need service; see enclosed warranty card for service information.

- **PROBLEM:**
  No audio (PROTECT LED is on).

  CAUSE and SOLUTION:
  Amplifier is overheated. Make sure amplifier cooling is not blocked at mounting location; verify that speaker-system impedance is within specified limits.

- **PROBLEM:**
  No audio (PROTECT and POWER LEDs flash).

  CAUSE and SOLUTION:
  Voltage less than 9V on BATT+ connection. Check vehicle charging system.

- **PROBLEM:**
  No audio (PROTECT LED is on).

  CAUSE and SOLUTION:
  Voltage greater than 16V or less than 8.5V on BATT+ connection. Check vehicle charging system.

- **PROBLEM:**
  Distorted audio.

  CAUSE and SOLUTION:
  Input sensitivity is not set properly, or amplifier or source unit is defective. Check INPUT LEVEL setting, or check speaker wires for shorts or grounds.

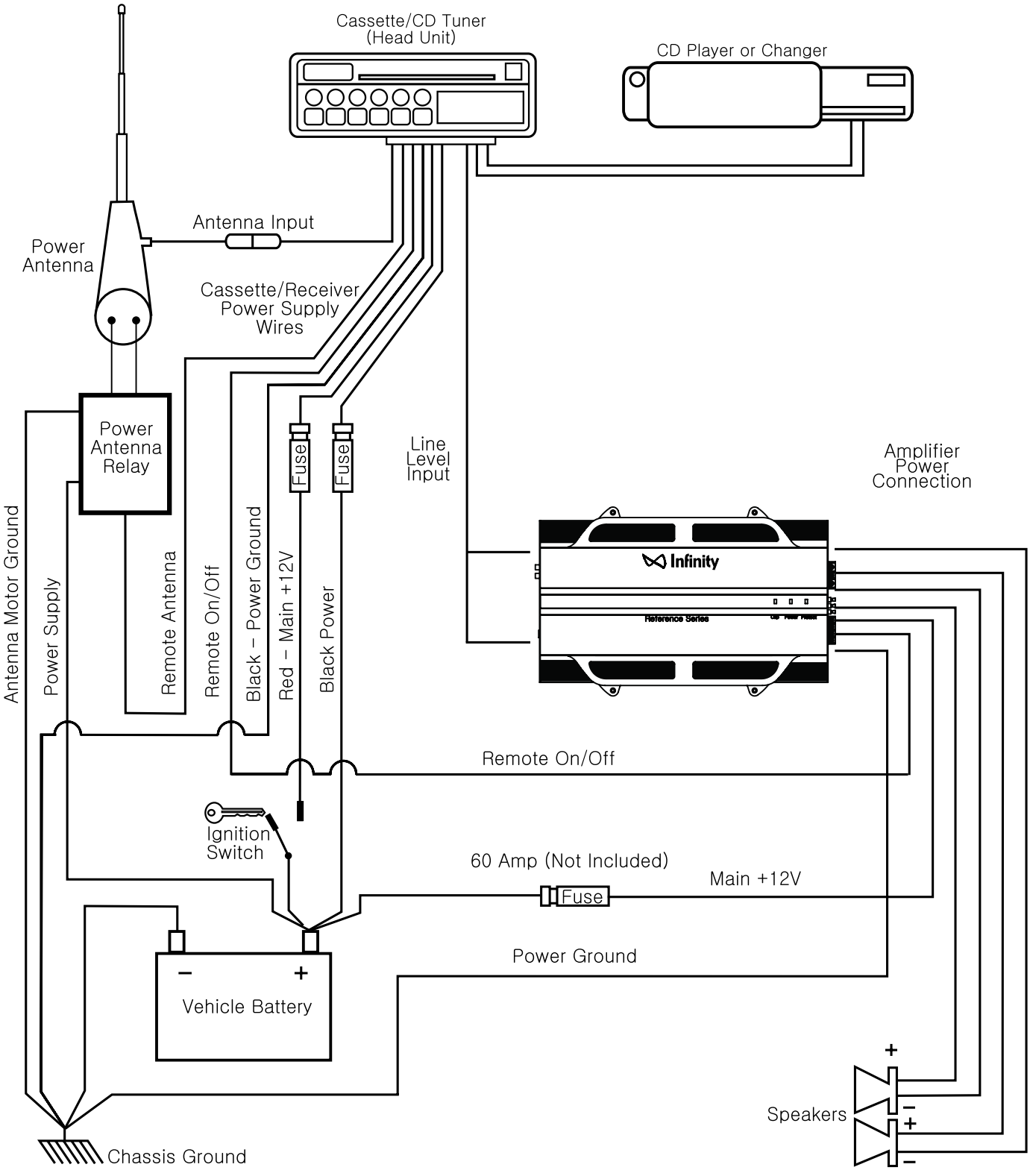
- **PROBLEM:**
  Distorted audio (PROTECT LED flashes).

  CAUSE and SOLUTION:
  Short circuit in speaker or wire. Remove speaker leads one at a time to locate shorted speaker or wire, then repair.

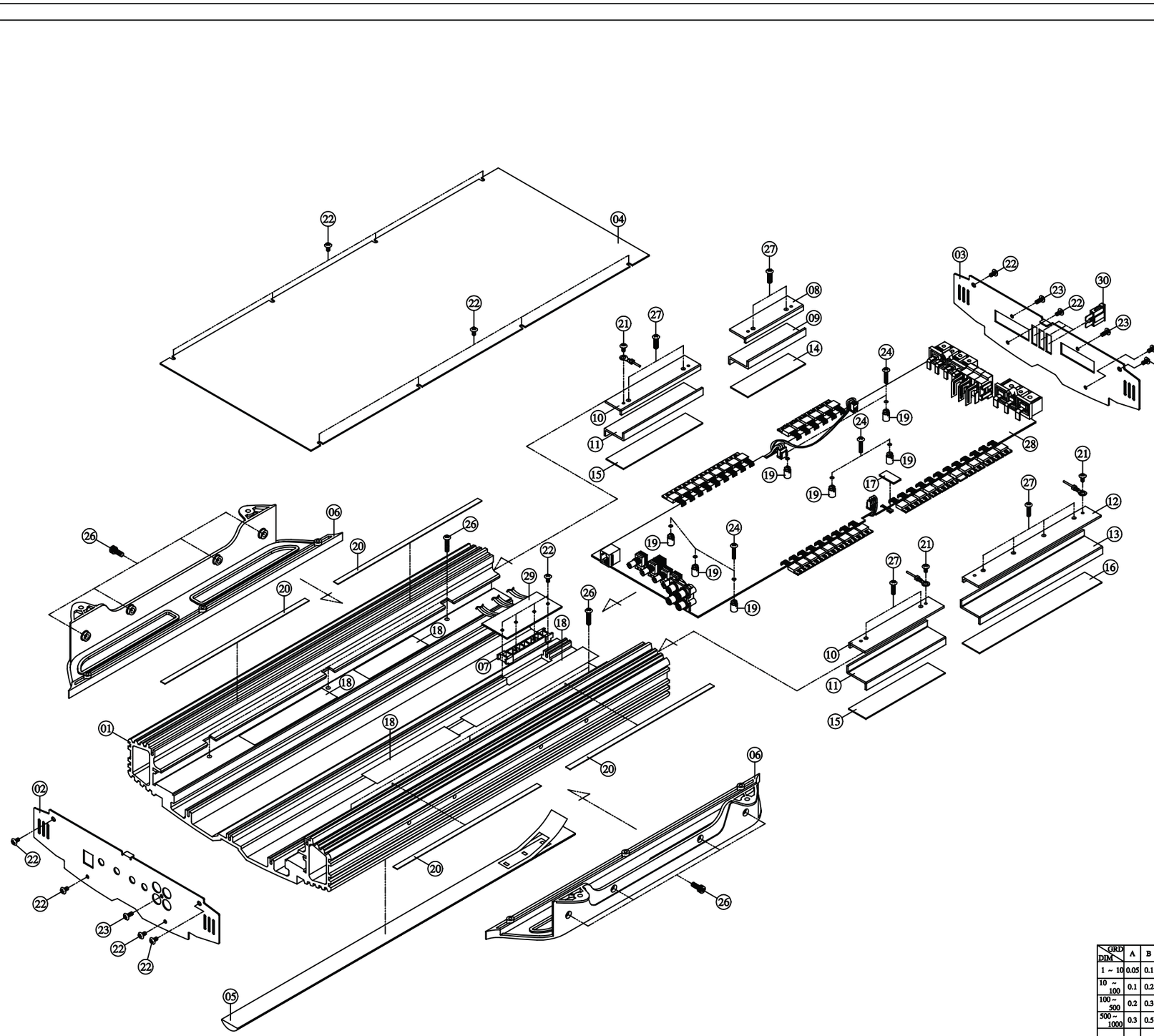
- **PROBLEM:**
  Music lacks “punch.”

  CAUSE and SOLUTION:
  Speakers are not connected properly. Check speaker connections for proper polarity.

Typical System Configuration



Mechanical Exploded View



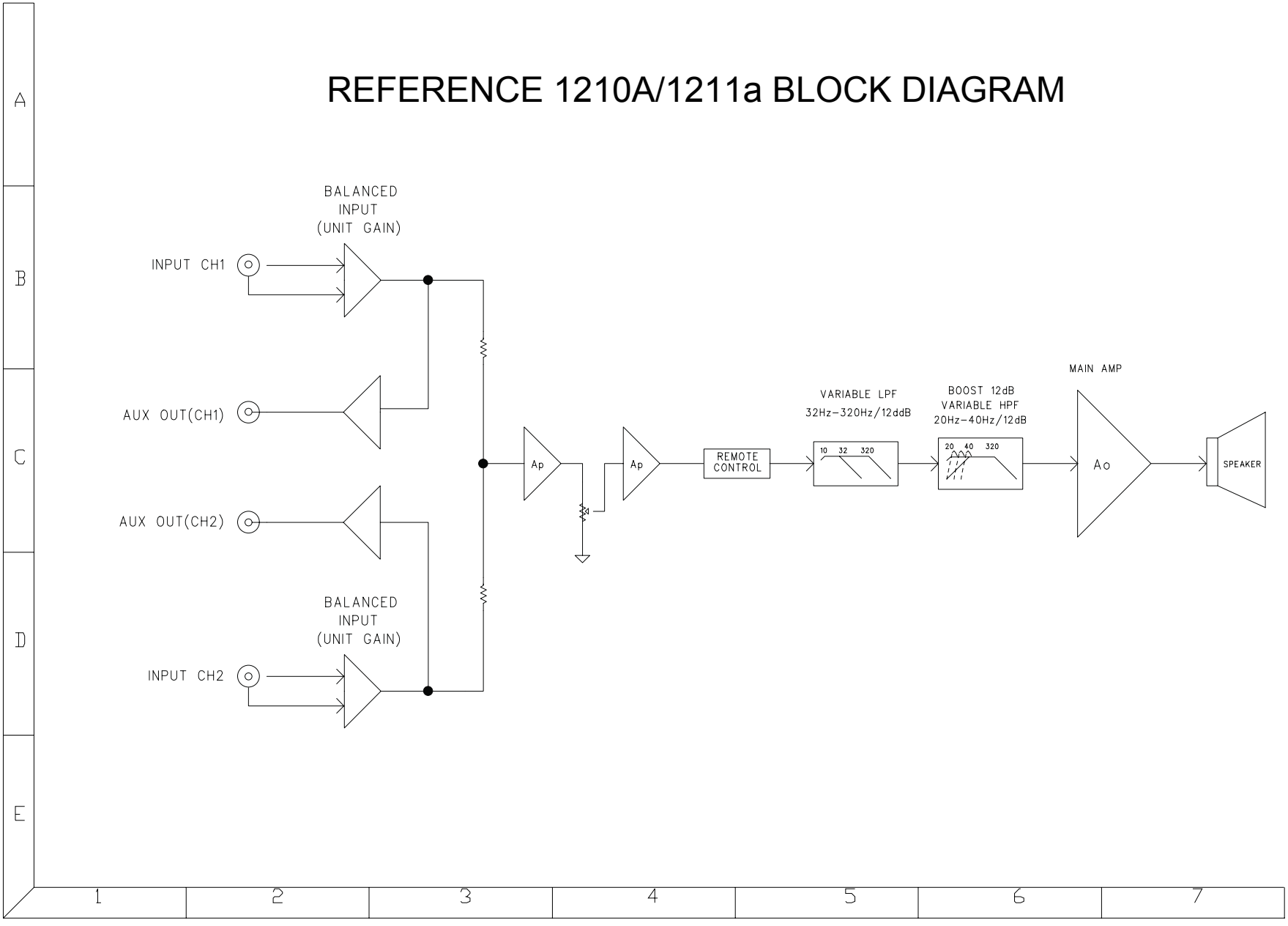
NO	PART NAME	PART #	DESCRIPTION	QTY
01	HEAT SINK-MAIN	HEA-01-184AB	AL/EXTRUSION(L=470.0mm)	1EA
02	PANEL-FRONT	PAN-06-279AA	EGI, 1.2t	1EA
03	REF 1210a PANEL-REAR	PAN-06-281AA	EGI, 1.2t	1EA
	REF 1211a PANEL-REAR	PAN-06-302AA	EGI, 1.2t	1EA
04	COVER-BOTTOM	COV-01-135AA	EGI, 1.2t	1EA
05	COVER-LENS	COV-22-553AA	ACRYLIC, L=380.0mm	1EA
06	FOOT-MOUNTING	FOO-21-015AA	ABS(XR-401), L=290.0mm	2EA
07	ILLUMINATOR	ILL-23-503A0	PC/MILKY	1EA
08	BRACKET-TR(A)	BKT-11-003A0	SBHG, 80.0× 22.5× 2.0t	1EA
09	BRACKET-TR(B)	BKT-11-004A0	SBHG, 80.0× 25.5× 2.0t	1EA
10	BRACKET-TR(C)	BKT-11-001A0	SBHG, 110.0× 22.5× 2.0t	2EA
11	BRACKET-TR(D)	BKT-11-002A0	SBHG, 110.0× 25.5× 2.0t	2EA
12	BRACKET-TR(E)	BKT-11-005A0	SBHG, 170.0× 22.5× 2.0t	1EA
13	BRACKET-TR(F)	BKT-11-006A0	SBHG, 170.0× 25.5× 2.0t	1EA
14	CUSHION-TR BRACKET (A)	SUB-28-007A0	FIBER, 80.0× 22.0× 1.0t	1EA
15	CUSHION-TR BRACKET (B)	SUB-28-001A0	FIBER, 110.0× 22.0× 1.0t	2EA
16	CUSHION-TR BRACKET (C)	SUB-28-008A0	FIBER, 170.0× 22.0× 1.0t	1EA
17	CUSHION-RUBBER	SUB-33-001A0	RUBBER, 10.0× 20.0× 1.6t	1EA
18	SILICON PAD	SIL-34-001A0	SP1000, 22.0× 0.3t	600mm
19	SUPPORT-PCB(A)	SS-5	NYLON, L=7.9mm	7EA
20	PAPER SPACER(A)	SUB-28-002A0	FIBER, 200.0× 6.0× 0.5t	4EA
21	SCREW	SC5-NB-30050	STT2 BH 3× 5 NI-P	3EA
22	SCREW	SC5-BB-30060	STT2 BH 3× 6 BK	20EA
23	SCREW	SC5-BB-30080	STT2 BH 3× 8 BK	3EA
24	SCREW	SC5-NB-30150	STT2 BH 3× 15 NI-P	7EA
25	SCREW	SC5-NP-35160	STT2 PH 3.5× 16 NI-P	6EA
26	SCREW	SC1-NL-40100	SML 4× 10 NI-P	8EA
27	SCREW	SC1-NP-40140	SMP 4× 14 NI-P	10EA
28	MAIN PCB	PAM661-01	148.0× 469.0mm	1EA
29	LED PCB	PAS328-01	44.0× 76.0mm, BLACK	1EA
30	AUTO FUSE	FUS-AT-00006	40A	3EA

GRD DIM	A	B	C
1 ~ 10	0.05	0.1	0.2
10 ~ 100	0.1	0.2	0.3
100 ~ 500	0.2	0.3	0.5
500 ~ 1000	0.3	0.5	1.5

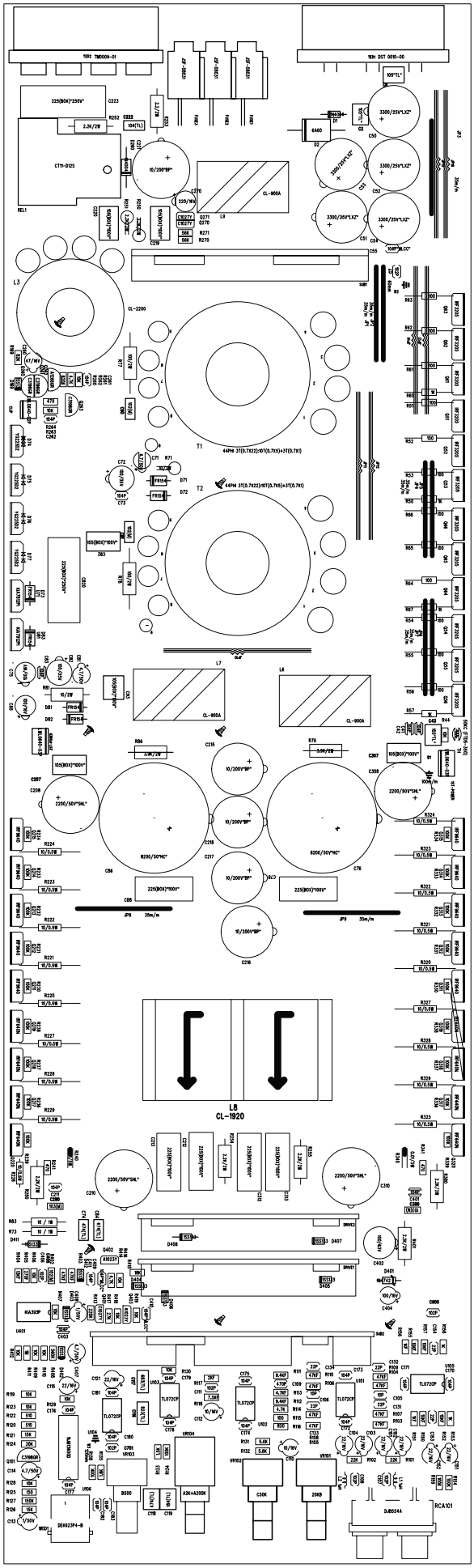
THIRD ANGLE	UNIT	SCALE	DATE	MODEL	REF5760a
	MM	1 : 1	2004.04.10	DRAW NO	
DRAW	CHECK	APPRO		NAME	
H.Y.AN		D.W.SEO		EXPLODED VIEW	
				CODE NO.	ISSUE Φ

PART NO.	NOMENCATURE	DESCRIPTION	MFR PARTS	Q'TY
HEA-01-184AB	HEAT SINK-MAIN	AL/EXTRUSION(L=470.0mm)	side:P432C sandton spray,top:silver spray/silk screen	1
PAN-06-279AA	PANEL-FRONT	EGI, 1.2t	P432C Painting & silk screen	1
PAN-06-281AA	REF 1210a PANEL-REAR	EGI, 1.2t	P432C Painting & silk screen	1
PAN-06-302AA	REF 1211a PANEL-REAR	EGI, 1.2t	P432C Painting & silk screen	1
COV-01-135AA	COVER-BOTTOM	AL, 1.2t	P432C Painting	1
COV-22-553AA	COVER-LENS	ACRYLIC,(L=470mm)	SILKSCREEN,DUAL TAPE	1
FOO-21-015AA	FOOT-MOUNTING	ABS(XR-401),L=380mm	SILVER SPRAY	2
ILL-23-503A0	ILLUMINATOR	PC/MILKY		1
BKT-11-003A0	BRACKET TR(A)	SBHG, 80.0x22.5x2.0t		1
BKT-11-004A0	BRACKET TR(B)	SBHG, 80.0x25.5x2.0t		1
BKT-11-001A0	BRACKET TR(C)	SBHG, 110.0x22.5x2.0t		2
BKT-11-002A0	BRACKET TR(D)	SBHG, 110.0x25.5x2.0t		2
BKT-11-005A0	BRACKET TR(E)	SBHG, 170.0x22.5x2.0t		1
BKT-11-006A0	BRACKET TR(F)	SBHG, 170.0x25.5x2.0t		1
SUB-28-007A0	CUSHION TR BRACKET(A)	FIBER, 80.0x22.0x1.0t		1
SUB-28-001A0	CUSHION TR BRACKET(B)	FIBER, 110.0x22.0x1.0t		2
SUB-28-008A0	CUSHION TR BRACKET(C)	FIBER, 170.0x22.0x1.0t		1
SUB-33-001A0	CUSHION RUBBER	RUBBER, 10.0x20.0x1.6t		1
SIL-34-001A0	SILICON PAD	SP1000, 22.0x0.3t		600mm
SS-5	SUPPORT PCB	NYLON, L=7.9mm		7
SUB-28-002A0	PAPER SPACER(A)	FIBER, 200.0x6.0x0.5t	COVER-BOTTOM 4	
SUB-28-519A0	PAPER SPACER(B)	FIBER, 200.0x8.0x0.5t	TR	1
SUB-28-503A0	PAPER SPACER(C)	FIBER, 200.0x10.0x0.5t	FET	1
SC5-NB-30050	SCREW	STT2 BH 3x5 NI-P	GROUND WIRE	1
SC5-BB-30060	SCREW	STT2 BH 3x6 BK	PANEL/S+H/S(8),SUB/P+ILLUMINATOR(2), SUB/P+H/S(2),C/B+H/S(8)	20
SC5-BB-30080	SCREW	STT2 BH 3x8 BK	RCA(1), TERMINAL(2)	3
SC5-NB-30150	SCREW	STT2 BH 3x15 NI-P	PCB + HEAT SINK	7
SC5-NP-35160	SCREW	STT2 PH 3.5x16 NI-P	FOOT/M+ H/SINK	6
SC1-NL-40100	SCREW	SML 4x10 NI-P	FOOT/M + H/SINK	8
SC1-NP-40140	SCREW	SMP 4x14 NI	BRACKET TR	10
SC4-NO-40250	SCREW	STT1 OH 4x25 NI-P	ACCESSORY	4

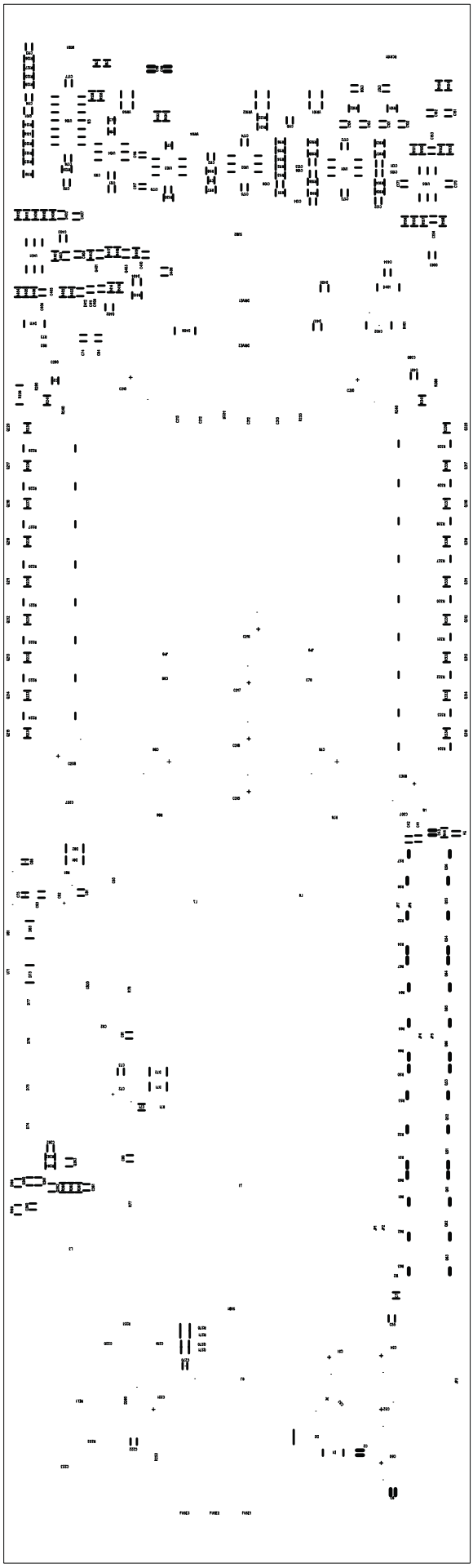
REFERENCE 1210A/1211a BLOCK DIAGRAM



Printed Circuit Board (Top View)

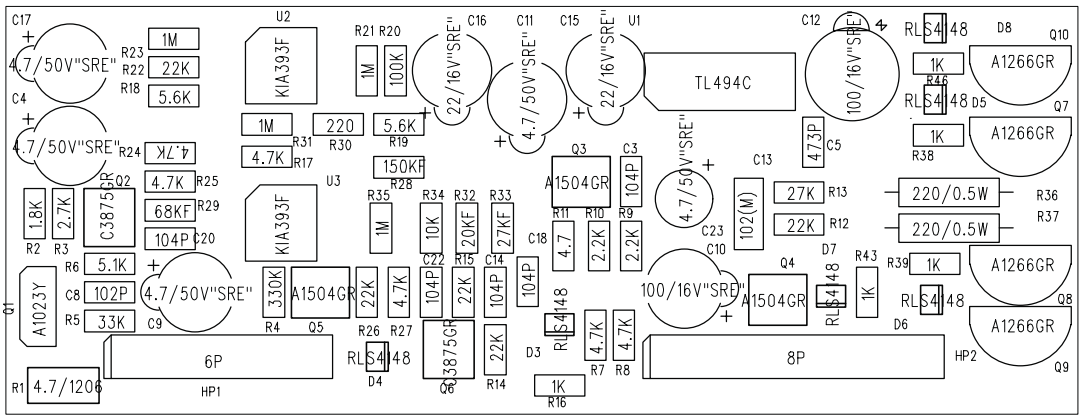


Printed Circuit Board (BOTTOM View)



Printed Circuit Board (SUB TOP View)

PAS331-01



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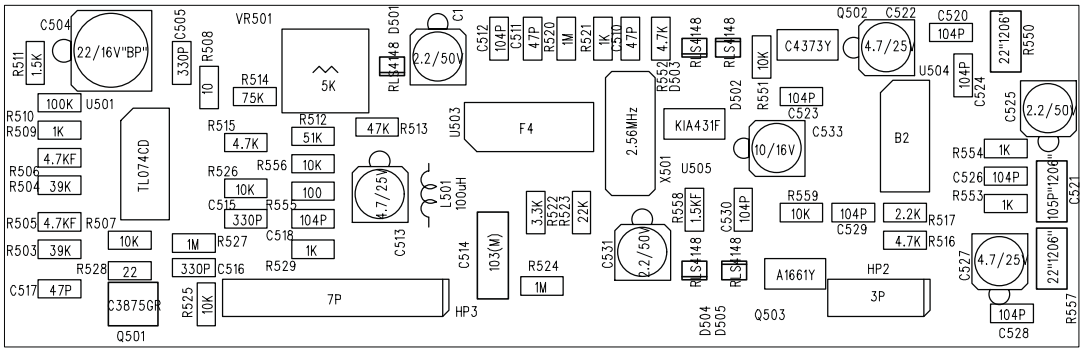

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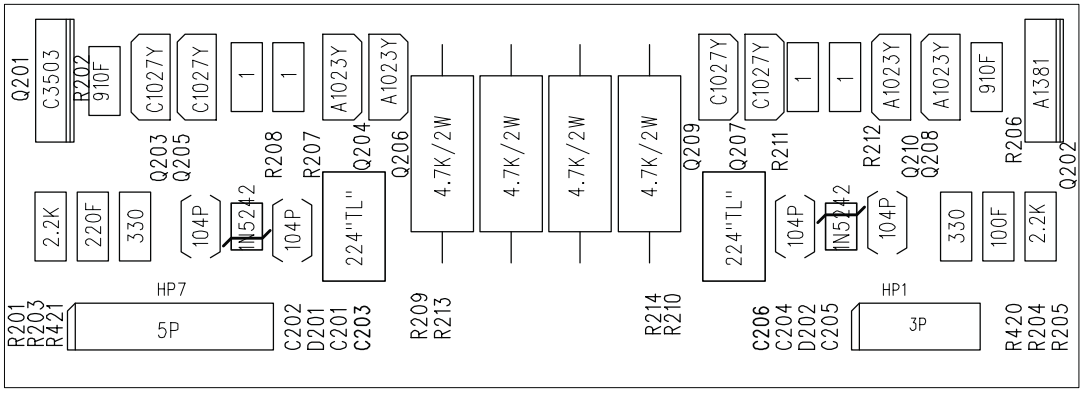
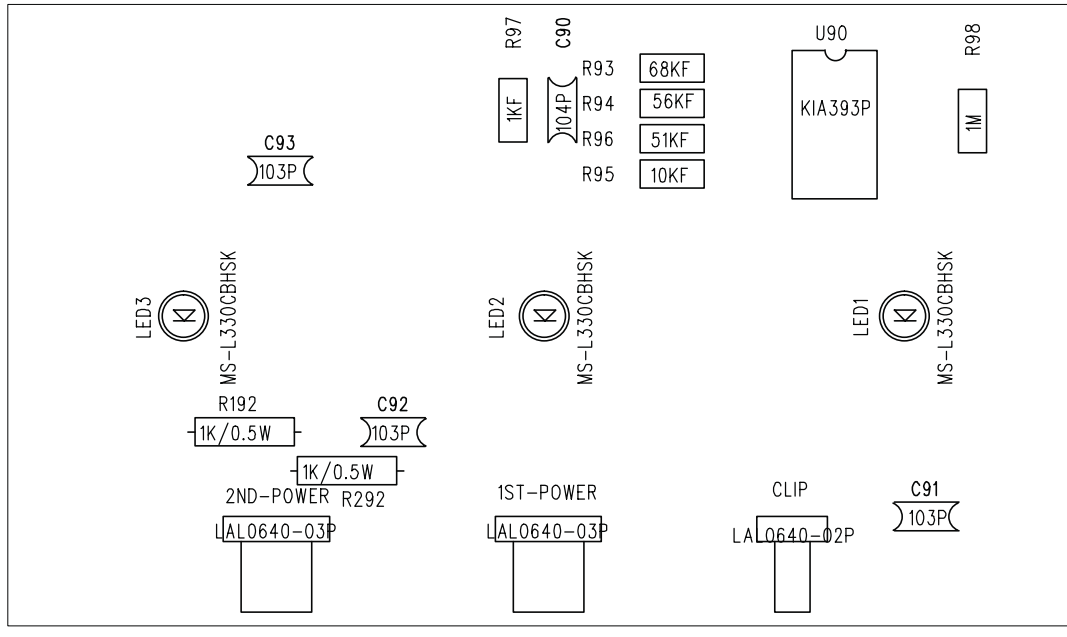


Printed Circuit Board (SUB TOP View)

PAS328-01



Electrical Parts List

PART NO.	NOMENCATURE	DESCRIPTION	MFR PARTS	REF. NO	Q'TY
DIO-00-00108	DIODE	FAST RECOVERY	FR154	D71,72,73,81,82,83	6
DIO-00-00003	DIODE	RECTIFIER	1N4004	D1,260	2
DIO-00-00019	DIODE	ZENER 1W,12V	1N4742	D401	1
DIO-00-00006	DIODE	SWITCHING SIGNAL	1SS133 / 1N4148	D169,402,403,404,405,406,407,408,411,412	10
TRS-00-00087	TRANSISTOR	SMALL SIGNAL PNP "TO-92L"	KTA1023Y	Q402,403	2
TRS-00-00088	TRANSISTOR	SMALL SIGNAL NPN "TO-92L"	KTC1027Y	Q270,271,401	3
TRS-00-00090	TRANSISTOR	SMALL SIGNAL PNP "TO-92"	KTA1266GR	Q262	1
TRS-00-00110	TRANSISTOR	SMALL SIGNAL NPN "TO-92"	KTC3198GR	Q101,260,261,263	4
RES-00-00479	RESISTOR	METAL FILM 1/5WF	270 OHM	R405	1
RES-00-00437	RESISTOR	METAL FILM 1/5WF	1KF OHM	R151,156	2
RES-00-00482	RESISTOR	METAL FILM 1/5WF	2KF OHM	R117	1
RES-00-00523	RESISTOR	METAL FILM 1/5WF	4.7KF OHM	R113	1
RES-00-00575	RESISTOR	METAL FILM 1/5WF	7.5KF OHM	R118	1
RES-00-00589	RESISTOR	METAL FILM 1/5WF	9.4KF OHM	R111,112	2
RES-00-00402	RESISTOR	METAL FILM 1/5WF	10KF OHM	R150,152,155,157	4
RES-00-00419	RESISTOR	METAL FILM 1/5WF	13KF OHM	R404	1
RES-00-00537	RESISTOR	METAL FILM 1/5WF	47KF OHM	R103,104,105,106,107,108,109,110,402,403	10
RES-00-00606	RESISTOR	CARBON FILM 1/5WJ	100 OHM	R51,52,53,54,55,56,61,62,63,64	13
RES-00-00622	RESISTOR	CARBON FILM 1/5WJ	150 OHM	R125	1
RES-00-00712	RESISTOR	CARBON FILM 1/5WJ	470 OHM	R241,264,341	3
RES-00-00723	RESISTOR	CARBON FILM 1/5WJ	510 OHM	R120,122	2
RES-00-00756	RESISTOR	CARBON FILM 1/5WJ	820 OHM	R116	1
RES-00-00633	RESISTOR	CARBON FILM 1/5WJ	1K OHM	R50,57,60,67,153,158	6
RES-00-00598	RESISTOR	CARBON FILM 1/5WJ	1.5K OHM	R133	1
RES-00-00602	RESISTOR	CARBON FILM 1/5WJ	1.8K OHM	R135	1
RES-00-00702	RESISTOR	CARBON FILM 1/5WJ	4.7K OHM	R114,262,414	3
RES-00-00720	RESISTOR	CARBON FILM 1/5WJ	5.6K OHM	R131,132	2
RES-00-00608	RESISTOR	CARBON FILM 1/5WJ	10K OHM	R44,119,123,128,129,130,261,263,406,407 R409,410,412,416,418,419	16
RES-00-00623	RESISTOR	CARBON FILM 1/5WJ	15K OHM	R121,126	2
RES-00-00630	RESISTOR	CARBON FILM 1/5WJ	18K OHM	R415	1
RES-00-00658	RESISTOR	CARBON FILM 1/5WJ	22K OHM	R101,102	2
RES-00-00666	RESISTOR	CARBON FILM 1/5WJ	27K OHM	R417	1
RES-00-00680	RESISTOR	CARBON FILM 1/5WJ	30K OHM	R124	1
RES-00-00730	RESISTOR	CARBON FILM 1/5WJ	56K OHM	R270,271	2
RES-00-00757	RESISTOR	CARBON FILM 1/5WJ	82K OHM	R169	1
RES-00-00604	RESISTOR	CARBON FILM 1/5WJ	100K OHM	R134,138,154,159,230,231,232,233,234,236 R237,238,239,330,331,332,333,334,336,337 R338,339	22
RES-00-00620	RESISTOR	CARBON FILM 1/5WJ	150K OHM	R127	1
RES-00-00654	RESISTOR	CARBON FILM 1/5WJ	220K OHM	R413	1
RES-00-00727	RESISTOR	CARBON FILM 1/5WJ	560K OHM	R408	1
RES-00-00755	RESISTOR	CARBON FILM 1/5WJ	820K OHM	R260	1
RES-00-00635	RESISTOR	CARBON FILM 1/5WJ	1M OHM	R411	1
RES-00-00018	RESISTOR	METAL FILM 1/2WJ	10 OHM	R220,221,222,223,224,226,227,228,229,320 R321,322,323,324,325,327,328,329	18
RES-00-00794	RESISTOR	METAL FILM 1WJ	10 OHM	R73,83	2
IND-00-00025	INDUCTOR	LAL02TB1R0K AXIAL TYPE 5%	1uH	L1,2	2
CEC-00-00077	CAPACITOR	CERAMIC DISK 50V "NPO"	10pF	C105,106	2
CEC-00-00090	CAPACITOR	CERAMIC DISK 50V "NPO"	22pF	C131,132,133,134,153,154	6
CEC-00-00101	CAPACITOR	CERAMIC DISK 50V	470pF	C109	1
CEC-00-00074	CAPACITOR	CERAMIC DISK 50V	102pF	C7,107,108,111,406,701,900	7
CEC-00-00076	CAPACITOR	CERAMIC DISK 50V	104pF	C41,42,73,83,170,171,172,173,174,175 C176,177,178,179,180,181,182,183,211,261 C262,401,403,411	24
CEC-00-00124	CAPACITOR	CERAMIC DISK 50V "MLCC"	104pF	C55,409,410	3
ELC-00-00153	CAPACITOR	ELECTROLYTIC"SMS"	1uF/50V	C113,408	2
ELC-00-00160	CAPACITOR	ELECTROLYTIC"SMS"	4.7uF/50V	C71,81,114,407	4
ELC-00-00125	CAPACITOR	ELECTROLYTIC"SMS"	10uF/16V	C110,112	2
ELC-00-00127	CAPACITOR	ELECTROLYTIC"SMS"	22uF/16V	C101,102,103,104,115,121,151,152	8
ELC-00-00130	CAPACITOR	ELECTROLYTIC"SMS"	47uF/16V	C260	1
ELC-00-00523	CAPACITOR	ELECTROLYTIC"SMS"	100uF/16V	C75,85,404	3
ELC-00-00150	CAPACITOR	ELECTROLYTIC"SMS"	100uF/35V	C72,82	2
ELC-00-00132	CAPACITOR	ELECTROLYTIC"SMS"	220uF/16V	C270	1

Electrical Parts List cont'd

PART NO.	NOMENCATURE	DESCRIPTION	MFR PARTS	REF. NO	Q'TY
MYC-00-00020	CAPACITOR	MYLAR 5% 100V	102J	C90,91,405	3
MYC-00-00019	CAPACITOR	MYLAR 5% 100V	103J	C280,380	2
MYC-00-00091	CAPACITOR	MYLAR 5% 63V "TL TYPE"	683J	C117	1
MYC-00-00157	CAPACITOR	MYLAR 5% 63V "TL TYPE"	823J	C116	1
MYC-00-00083	CAPACITOR	MYLAR 5% 63V "TL TYPE"	104J	C222	1
MYC-00-00156	CAPACITOR	MYLAR 5% 63V "TL TYPE"	184J	C119	1
MYC-00-00066	CAPACITOR	MYLAR 5% 63V "TL TYPE"	474J	C74,84,118	3
MYC-00-00085	CAPACITOR	MYLAR 5% 63V "TL TYPE"	105J	C2,6,43	3
ICO-00-00003	I.C	DUAL OPAMP DIP-08	TL072CP	U101,102,103,104,105	5
ICO-00-00170	I.C	VOLUME IC DIP-16	NJM 13600D	U106	1
ICO-00-00095	I.C	COMPORATOR IC DIP-08	KIA393P	U401	1
ICO-00-00157	I.C	VOTAGE REGULATOR +12V 1A	KIA7812PI	U71	1
ICO-00-00162	I.C	VOTAGE REGULATOR -12V 1A	KIA7912PI	U81	1
FET-00-00001	F.E.T	N-CH POWER FET "TO-220"	IRF3205	Q51,52,53,54,55,56,61,62,63,64 Q65,66	12
FET-00-00046	F.E.T	N-CH POWER FET "TO-220"	IRF640N	Q217,218,219,220,317,318,319,320	8
FET-00-00021	F.E.T	P-CH POWER MOSFET	IRF9640	Q211,212,213,214,215,311,312,313,314,315	10
DIO-00-00152	DIODE	FAST RECOVERY	YG225D2	D74,75,76,77	4
DIO-00-00177	DIODE	FAST RECOVERY	6A60	D2	1
RES-00-01112	RESISTOR	MOR-S 2WJ	2.2 OHM	R253	1
RES-00-00846	RESISTOR	MOR-S 2WJ	10 OHM	R71,81	2
RES-00-00844	RESISTOR	MOR-S 2WJ	100 OHM	R77,78	2
RES-00-00853	RESISTOR	MOR-S 2WJ	2.2K OHM	R250,251,252,254,255,280,380,401	8
RES-00-01099	RESISTOR	MOR-S 2WJ	3.9K OHM	R76,86	2
RES-00-00947	RESISTOR	SHUNT RESISTOR 5WJ (3P)	0.01 OHM	R240,340	2
ELC-00-00167	CAPACITOR	ELECTROLYTIC"SMS"	100/63V	C402	1
ELC-00-00010	CAPACITOR	ELECTROLYTIC"BP"	10/200V	C215,216,217,218,221	5
ELC-00-00187	CAPACITOR	ELECTROLYTIC"SHL"	2200/50V	C208,210,308,310	4
ELC-00-00716	CAPACITOR	ELECTROLYTIC"LXZ"	3300/25V	C50,51,52,53,54	5
ELC-00-00033	CAPACITOR	ELECTROLYTIC"HC"	8200/50V	C76,86	2
MYC-00.-0010	CAPACITOR	MYLAR 10% 100V "BOX TYPE"	105K	C92,93,207,219,220,307	6
MYC-00.-0007	CAPACITOR	MYLAR 10% 100V "BOX TYPE"	225K	C78,88,212,213,312,313	6
MYC-00.-0010	CAPACITOR	MYLAR 10% 250V "BOX TYPE"	225K	C223,820	2
COI-00-00086	INDUCTOR	DRUM COIL	CL-900A	L6,7,9	3
COI-00-00073	INDUCTOR	DRUM COIL	CL-2200	L3	1
COI-00-00112	INDUCTOR	DRUM COIL	CL-1920	L8	1
GAP-00-050A0	GAP PAD	CL-1920 (32 X 60 X 5T)		L8	1
COR-TF-00392	CORE		44 PHI MAG	T1,T2 , 44PHI 3T(0.7X22):10T(0.7X5):3T(0.7X1)	2
TER-00-00163	POWER	3P TERMINAL	DST 0010-00	TER1	1
TER-00-00034	SPEAKER	4P TERMINAL	TM0009-01	TER2	1
HOD-00-00006	FUSE HOLDER	PCB TYPE	JSF-08031	FUSE1,2,3	3
FUS-AT-00008	AUTO FUSE	AUTO FUSE	40A	SET(3)+ACCESSORY(3)	6
JAC-00-00043	RCA JACK	GOLD PLATE	DJB-554A	RCA101	1
JUP-00-00003	JUMPER	BAR JUMP	35m/m	JP1,2,3,4,5,6,7,8,9	9
JUP-00-00005	JUMPER	BAR JUMPER	55 m/m	JP10,11,12,13,14,15,16	7
JAC-00-00050	MODULAR JACK	4P,BLACK	DEK623PCB4-B	MOD1	1
REL-00-00008	RELAY	DC 30A 12V	CT11-D12S	REL1	1
THS-00-00013	THERMISTOR	FTD5-350	50KC	TH	1
VOL-00-00335	VOLUME	V12L5(9X5)G(PH2D)N15S	15B20Kx2	VR101	1
VOL-00-00336	VOLUME	V12L5(9X5)G(PH2D)N15S	15C50Kx2	VR102	1
VOL-00-00352	VOLUME	V12L5(9X5) G(PH2D)N 15S	B500x2	VR103	1
VOL-00-00353	VOLUME	V12L5(9X5) G(4R)(PH2D)N 15S	15A2Kx2+15A200Kx2	VR104	1
WIR-00-00017	GND WIRE	#1007 AWG #22 BLACK , 3.2PHI	100m/m	W1	1
WIR-00-00111	GND WIRE	#1007 AWG #22 BLACK , 3.2PHI	60m/m	W2	1
WIR-00-00018	GND WIRE	#1007 AWG #22 BLACK , 3.2PHI	120 m/m	W3	1
TUB-00-00008	TEFLON TUBE	0.7 PHI	10 m/m	TH	2
CON-00-00002	WAFER		LWL0640-2P	CLIP	1
CON-00-00033	WAFER		LWL0640-3P	1ST POWER,2ST POWER	2

Electrical Parts List cont'd

PART NO.	NOMENCATURE	DESCRIPTION	MFR PARTS	REF. NO	Q'TY
ICO-00-00021	I.C	SMD PWM	TL494C	U1	1
ICO-00-00094	I.C	SMD "FLP-8"	KIA393F	U2,3	2
TRS-00-00098	TRANSISTOR	SMALL SIGNAL PNP,SOT-23	KTA1504GR	Q3,4,5	3
TRS-00-00113	TRANSISTOR	SMALL SIGNAL NPN,SOT-23	KTC3875GR	Q2,6	2
DIO-00-00117	DIODE	SWITCHING SIGNAL	RLS4148	D3,4,5,6,7,8	6
RES-08-00035	RESISTOR	SMD "0805"1/10WF	20KF OHM	R32	1
RES-08-00048	RESISTOR	SMD "0805"1/10WF	27KF OHM	R33	1
RES-08-00111	RESISTOR	SMD "0805"1/10WF	68KF OHM	R29	1
RES-08-00021	RESISTOR	SMD "0805"1/10WF	150KF OHM	R28	1
RES-08-00193	RESISTOR	SMD "0805"1/10WJ	4.7 OHM	R11	1
RES-08-00163	RESISTOR	SMD "0805"1/10WJ	220 OHM	R30	1
RES-08-00148	RESISTOR	SMD "0805"1/10WJ	1K OHM	R16,38,39,43,46	5
RES-08-00129	RESISTOR	SMD "0805"1/10WJ	1.8K OHM	R2	1
RES-08-00151	RESISTOR	SMD "0805"1/10WJ	2.2K OHM	R9,10	2
RES-08-00156	RESISTOR	SMD "0805"1/10WJ	2.7K OHM	R3	1
RES-08-00191	RESISTOR	SMD "0805"1/10WJ	4.7K OHM	R7,8,17,24,25,27	6
RES-08-00200	RESISTOR	SMD "0805"1/10WJ	5.1K OHM	R6	1
RES-08-00201	RESISTOR	SMD "0805"1/10WJ	5.6K OHM	R18,19	2
RES-08-00132	RESISTOR	SMD "0805"1/10WJ	10K OHM	R34	1
RES-08-00164	RESISTOR	SMD "0805"1/10WJ	22K OHM	R12,14,15,22,26	5
RES-08-00170	RESISTOR	SMD "0805"1/10WJ	27K OHM	R13	1
RES-08-00182	RESISTOR	SMD "0805"1/10WJ	33K OHM	R5	1
RES-08-00130	RESISTOR	SMD "0805"1/10WJ	100K OHM	R20	1
RES-08-00180	RESISTOR	SMD "0805"1/10WJ	330K OHM	R4	1
RES-08-00149	RESISTOR	SMD "0805"1/10WJ	1M OHM	R21,23,31,35	4
RES-12-00189	RESISTOR	SMD "1206"1/8WJ	4.7 OHM	R1	1
CEC-08-00002	CAPACITOR	CHIP"0805" 50V 5%	102P	C8	1
CEC-08-00040	CAPACITOR	CHIP"0805" 50V 5%	473P	C5	1
CEC-08-00004	CAPACITOR	CHIP"0805" 50V 5%	104P	C3,14,18,20,22	5
TRS-00-00087	TRANSISTOR	SMALL SIGNAL PNP	KTA1023Y	Q1	1
TRS-00-00090	TRANSISTOR	SMALL SIGNAL PNP	KTA1266GR	Q7,8,9,10	4
RES-00-00038	RESISTOR	METAL FILM 1/2WJ	220 OHM	R36,37	2
ELC-00-00250	CAPACITOR	ELECTROLYTIC"SRE"	4.7uF/50V	C4,9,11,17,23	5
ELC-00-00641	CAPACITOR	ELECTROLYTIC"SRE"	22uF/16V	C15,16	2
ELC-00-00243	CAPACITOR	ELECTROLYTIC"SRE"	100uF/16V	C10,12	2
MYC-00-00020	CAPACITOR	MYLAR 5% 100V	102J	C13	1
HED-00-00100	HEADER PIN	PIN HEADER C-TYPE 6P	TM2007-C9G-06P	HP1	1
HED-00-00228	HEADER PIN	PIN HEADER C-TYPE 8P	TM2007-C9G-08P	HP2	1
ICO-00-00005	I.C	SMD QUAD OP AMP "SO-14"	TL074CD	U501	1
ICO-00-00099	I.C	2.5V SHUNT IC , SOT-89	KIA431F	U505	1
ICO-00-00054	I.C	DIVIDER	F4	U503	1
ICO-00-00546	I.C	COMPARATOR "SO-14"	B2	U504	1
TRS-00-00197	TRANSISTOR	HIGH CURRENT PNP,SOT-89	KTA1661Y	Q503	1
TRS-00-00115	TRANSISTOR	HIGH CURRENT NPN,SOT-89	KTC4373Y	Q502	1
TRS-00-00113	TRANSISTOR	SMALL SIGNAL NPN,SOT-23	KTC3875GR	Q501	1
DIO-00-00117	DIODE	SWITCHING SIGNAL	RLS4148	D501,502,503,504,505	5
RES-08-00005	RESISTOR	SMD "0805"1/10WF	1.5KF OHM	R558	1
RES-08-00077	RESISTOR	SMD "0805"1/10WF	4.7KF OHM	R505,506	2
RES-08-00135	RESISTOR	SMD "0805"1/10WJ	10 OHM	R508	1
RES-08-00165	RESISTOR	SMD "0805"1/10WJ	22 OHM	R528	1
RES-08-00131	RESISTOR	SMD "0805"1/10WJ	100 OHM	R555	1
RES-08-00148	RESISTOR	SMD "0805"1/10WJ	1K OHM	R509,521,529,553,554	5
RES-08-00126	RESISTOR	SMD "0805"1/10WJ	1.5K OHM	R511	1
RES-08-00151	RESISTOR	SMD "0805"1/10WJ	2.2K OHM	R517	1
RES-08-00174	RESISTOR	SMD "0805"1/10WJ	3.3K OHM	R522	1
RES-08-00191	RESISTOR	SMD "0805"1/10WJ	4.7K OHM	R515,516,552	3
RES-08-00132	RESISTOR	SMD "0805"1/10WJ	10K OHM	R507,525,526,551,556,559	6
RES-08-00164	RESISTOR	SMD "0805"1/10WJ	22K OHM	R523	1
RES-08-00187	RESISTOR	SMD "0805"1/10WJ	39K OHM	R503,504	2

Electrical Parts List cont'd

PART NO.	NOMENCATURE	DESCRIPTION	MFR PARTS	REF. NO	Q'TY
RES-08-00198	RESISTOR	SMD "0805"1/10WJ	47K OHM	R513	1
RES-08-00204	RESISTOR	SMD "0805"1/10WJ	51K OHM	R512	1
RES-08-00221	RESISTOR	SMD "0805"1/10WJ	75K OHM	R514	1
RES-08-00130	RESISTOR	SMD "0805"1/10WJ	100K OHM	R510	1
RES-08-00149	RESISTOR	SMD "0805"1/10WJ	1M OHM	R520,524,527	3
RES-12-00161	RESISTOR	SMD "1206"1/8WJ	22 OHM	R550,557	2
CEC-08-00042	CAPACITOR	CHIP"0805" 50V 5%	47pF	C510,511,517	3
CEC-08-00028	CAPACITOR	CHIP"0805" 50V 5%	330pF	C505,515,516	3
CEC-08-00004	CAPACITOR	CHIP"0805" 50V 5%	104pF	C512,518,520,523,524,526,528,529,530	9
CEC-12-00008	CAPACITOR	CHIP"1206" 50V 5%	105pF	C521	1
ELC-00-00077	CAPACITOR	ELECTROLYTIC CHIP "MV"	2.2uF/50V	C1,525,531	3
ELC-00-00070	CAPACITOR	ELECTROLYTIC CHIP "MV"	4.7uF/25V	C513,522,527	3
ELC-00-00356	CAPACITOR	ELECTROLYTIC CHIP "MV"	10uF/16V	C533	1
ELC-00-00635	CAPACITOR	ELECTROLYTIC CHIP "BP"	22uF/16V"NP"	C504	1
MYC-00-00019	CAPACITOR	MYLAR 5% 100V	103J	C514	1
IND-00-00020	INDUCTOR	AXIAL TYPE 5%	100uH	L501	1
REN-00-00001	RESONATOR	2.56MHz	CSA256MG	X501	1
VOL-00-00238	VOLUME	SEMI X-TYPE (RG06X502)	5K SEMI	VR501	1
HED-00-00214	HEADER PIN	PIN HEADER C-TYPE 3P	TM2007-C9G-03P	HP2	
HED-00-00215	HEADER PIN	PIN HEADER C-TYPE 7P	TM2007-C9G-07P	HP3	
DIO-00-00041	DIODE	ZENER 0.5W,12V	1N5242	D201,202	2(4)
TRS-00-00087	TRANSISTOR	SMALL SIGNAL PNP "TO-92L"	KTA1023Y	Q204,206,208,210	4(8)
TRS-00-00088	TRANSISTOR	SMALL SIGNAL NPN "TO-92L"	KTC1027Y	Q203,205,207,209	4(8)
RES-00-00401	RESISTOR	METAL FILM 1/5WF	100 OHM	R204	1(2)
RES-00-00463	RESISTOR	METAL FILM 1/5WF	220 OHM	R203	1(2)
RES-00-00590	RESISTOR	METAL FILM 1/5WF	910 OHM	R202,206	2(4)
RES-00-00636	RESISTOR	CARBON FILM 1/5WJ	1 OHM	R207,208,211,212	4(8)
RES-00-00685	RESISTOR	CARBON FILM 1/5WJ	330 OHM	R420,421	2(4)
RES-00-00637	RESISTOR	CARBON FILM 1/5WJ	2.2K OHM	R201,205	2(4)
CEC-00-00076	CAPACITOR	CERAMIC DISK 50V	104pF	C201,202,204,205	4(8)
MYC-00-00088	CAPACITOR	MYLAR 5% 63V "TL TYPE"	224J	C203,206	2(4)
RES-00-01033	RESISTOR	MOR-S 2WJ "3.8x11"	4.7K OHM	R209,210,213,214	4(8)
TRS-00-00096	TRANSISTOR	SMALL SIGNAL PNP	KSA/KTA1381	Q202	1(2)
TRS-00-00112	TRANSISTOR	SMALL SIGNAL NPN	KSC/KTC3503	Q201	1(2)
HED-00-00214	HEADER PIN	PIN HEADER C-TYPE 3P	TM2007-C9G-03P	HP1	1(2)
HED-00-00231	HEADER PIN	PIN HEADER C-TYPE 5P	TM2007-C9G-05P	HP7	1(2)
ICO-00-00095	I.C	COMPARATOR DIP-8P	KIA393P	U90	1
RES-00-00437	RESISTOR	METAL FILM 1/5WF	1K OHM	R97	1
RES-00-00402	RESISTOR	METAL FILM 1/5WF	10K OHM	R95	1
RES-00-00550	RESISTOR	METAL FILM 1/5WF	51K OHM	R96	1
RES-00-00556	RESISTOR	METAL FILM 1/5WF	56K OHM	R94	1
RES-00-00573	RESISTOR	METAL FILM 1/5WF	68K OHM	R93	1
RES-00-00635	RESISTOR	CARBON FILM 1/5WJ	1M OHM	R98	1
RES-00-00029	RESISTOR	METAL FILM 1/2WJ	1K OHM	R192,292	2
CEC-00-00005	CAPACITOR	CERAMIC TUBULAR 50V	103P	C91,92,93	3
CEC-00-00006	CAPACITOR	CERAMIC TUBULAR 50V	104P	C90	1
DIO-00-00321	LED	BLUE 3PHI	MS-L330CBHSK	LED1,2,3	3
CON-00-00139	WAFER		LAL0640-2P	CLIP	1
CON-00-00140	WAFER		LAL0640-3P	1ST POWER,2ND POWER	2
WIR-AS-00220	WIRE ASS'Y	BK,RED	CHL0640-2P(300m/m)	CLIP	1
WIR-AS-00218	WIRE ASS'Y	BK,RED,GREEN	CHL0640-3P(300m/m)	1ST POWER	1
WIR-AS-00219	WIRE ASS'Y	BK,YELLOW,GREEN	CHL0640-3P(300m/m)	2ND POWER	1

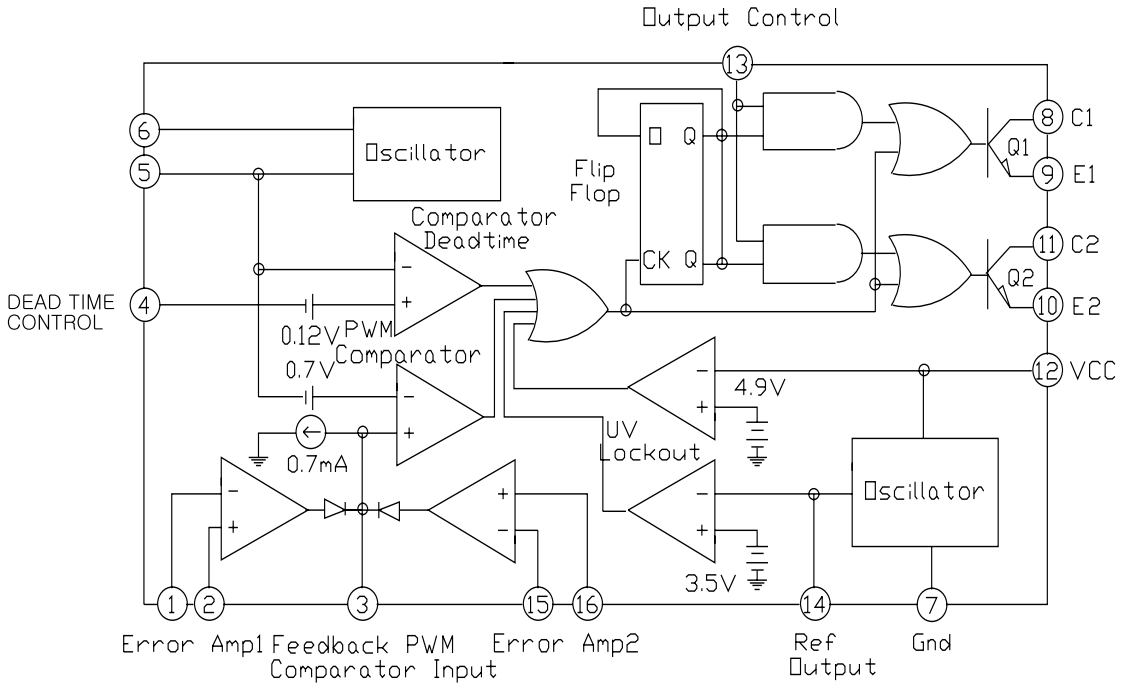
Reference 1211a Electrical Parts List Addendum

The following chart below represents the only electrical parts differences in 1210a and 1211a models:

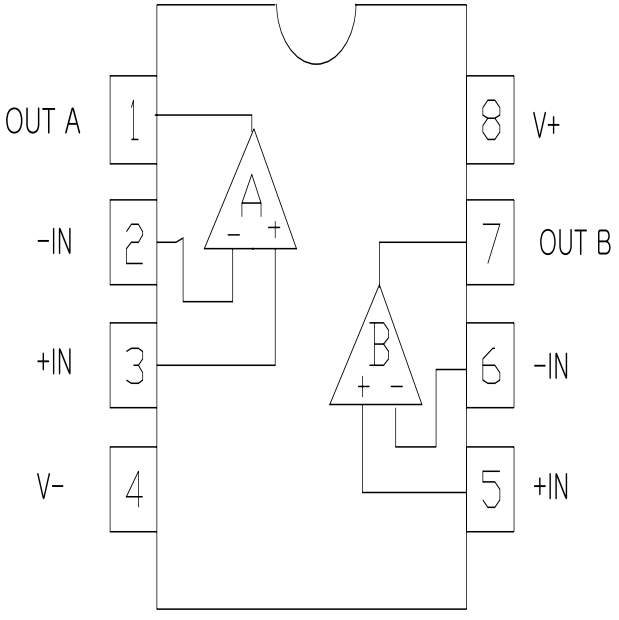
	MODEL	PART NAME	PART NUMBER	SPEC	DESIGNATOR
1	REF 1210a	RESISTOR	RES-00-00756	1/5WF 820 OHM	R116
	REF 1211a	**RESISTOR**	**RES-00-00474**	**1/5WF 240 OHM**	**R116**
2	REF 1210a	RESISTOR	RES-00-00482	1/5WF 2K OHM	R117
	REF 1211a	**RESISTOR**	**RES-00-00577**	**1/5WF 750 OHM**	**R117**
3	REF 1210a	RESISTOR	RES-00-00575	1/5WF 7.5K OHM	R118
	REF 1211a	**RESISTOR**	**RES-00-00402**	**1/5WF 10K OHM**	**R118**
3	REF 1210a	POWER TERMINAL	TER-00-00163	(3P) DST0010-00	TER1
	REF 1211a	POWER TERMINAL	**TER-00-00278**	**(3P) DK-03B04-AG-5-UP**	**TER1**
4	REF 1210a	SPEAKER TERMINAL	TER-00-00034	(4P) TM0009-01	TER2
	REF 1211a	SPEAKER TERMINAL	**TER-00-00276**	**(4P) DK-04A04-AG-5-UP**	**TER2**

Integrated Circuit Diagrams

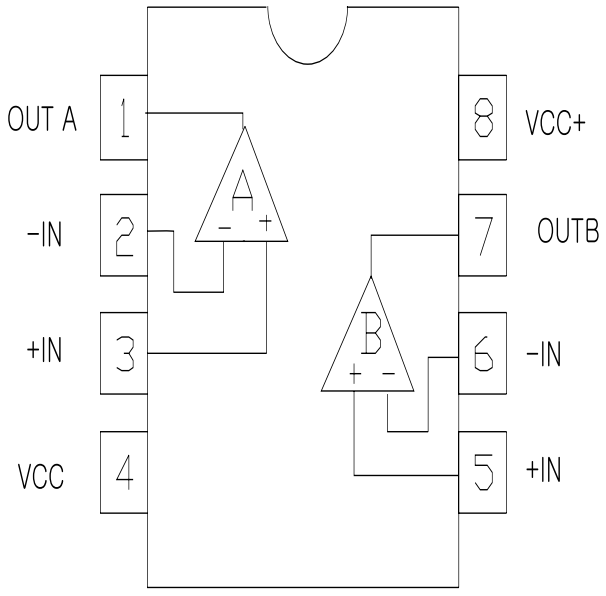
SUB B'D(PAS331-01) U1 (TL494CD) P.W.M IC



MAIN B'D : U401 (KIA393P)

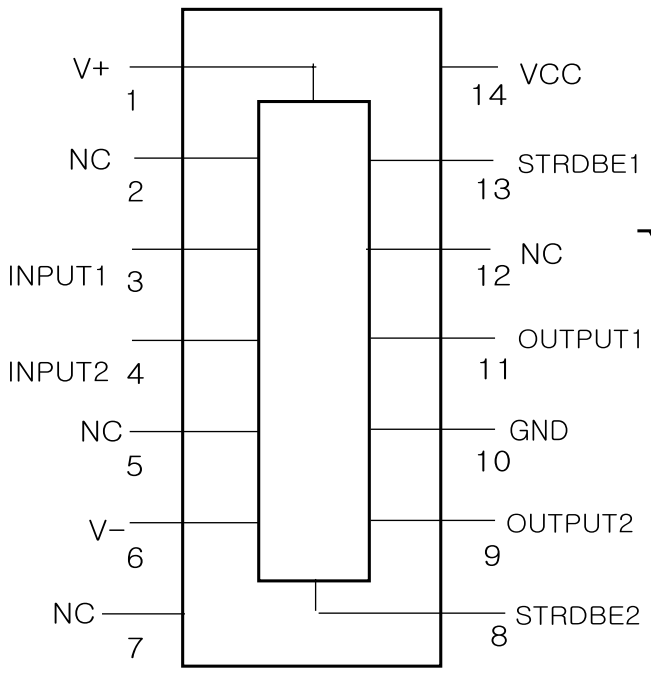


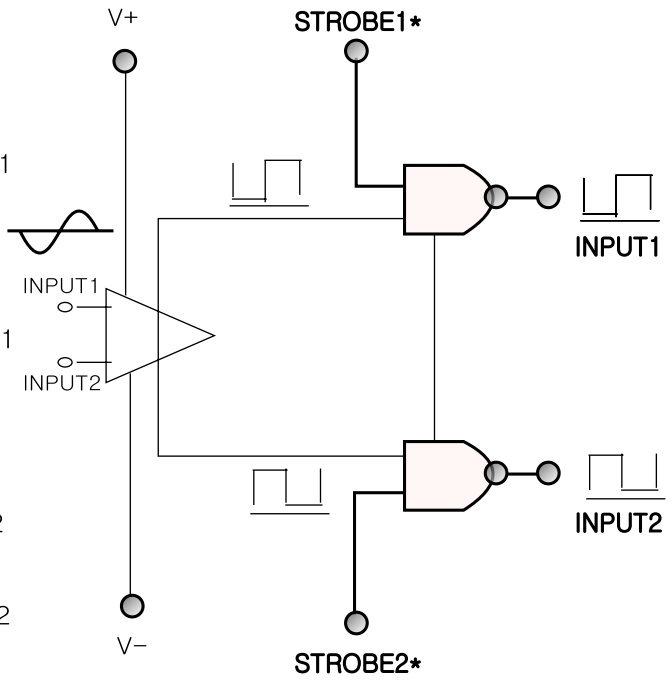
MAIN B'D : U101,102,103,104,105 (TL072CP)



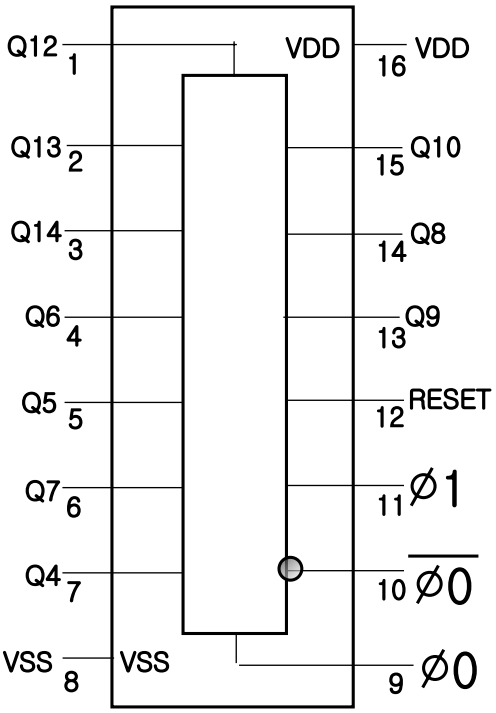
Integrated Circuit Diagrams

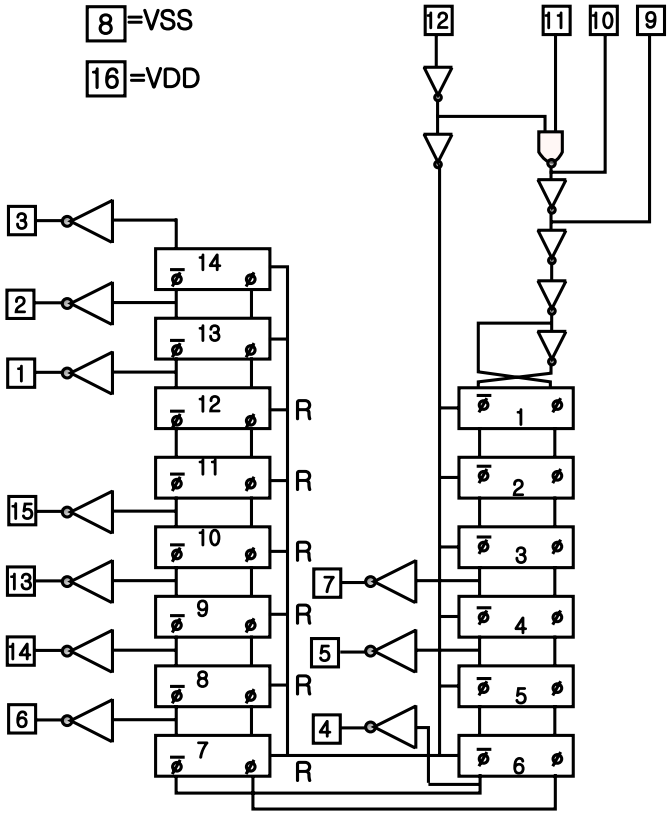
SUB B'D(PAS332-01) U504 (B2)



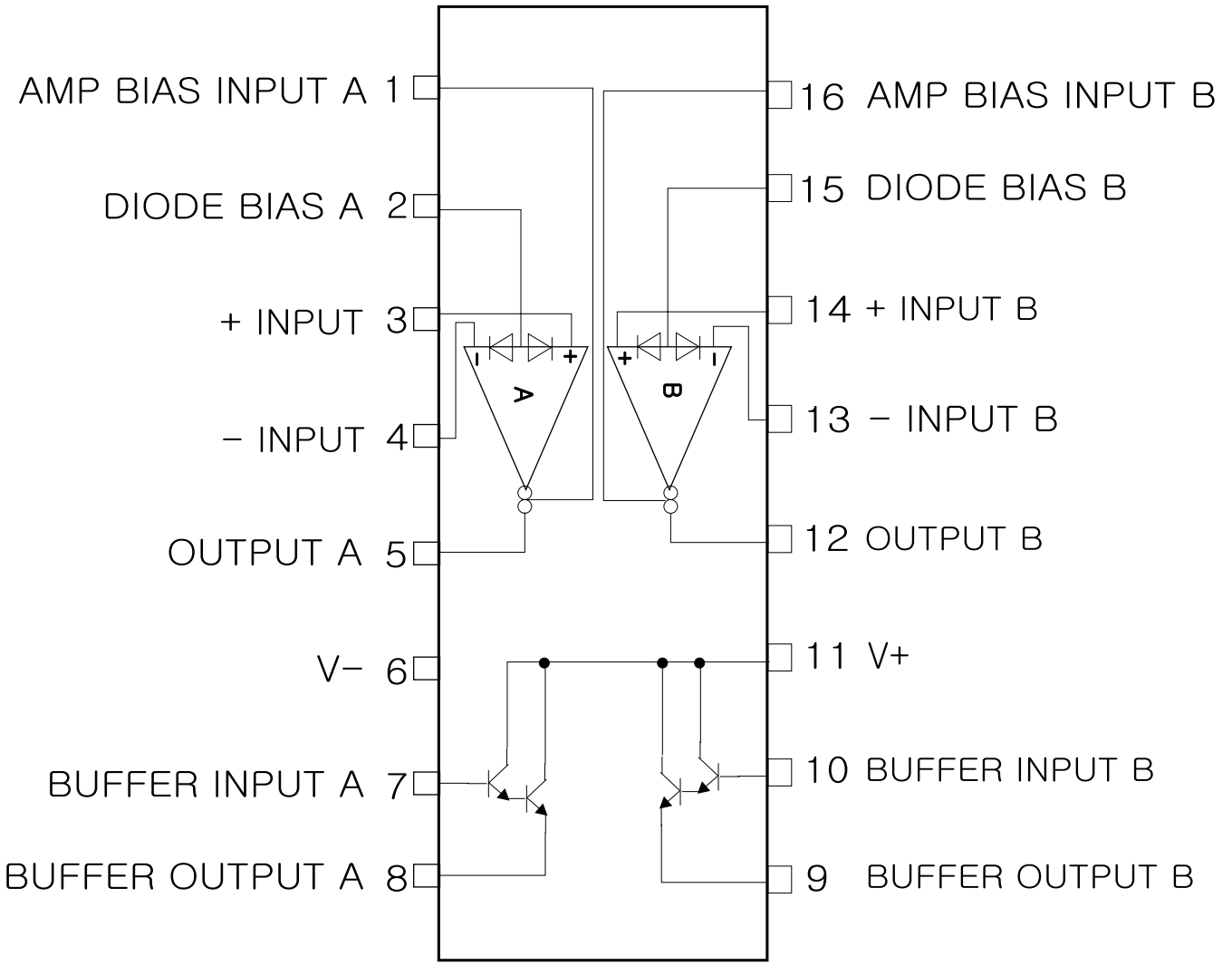


SUB B'D(PAS332-01) U503 (F4)



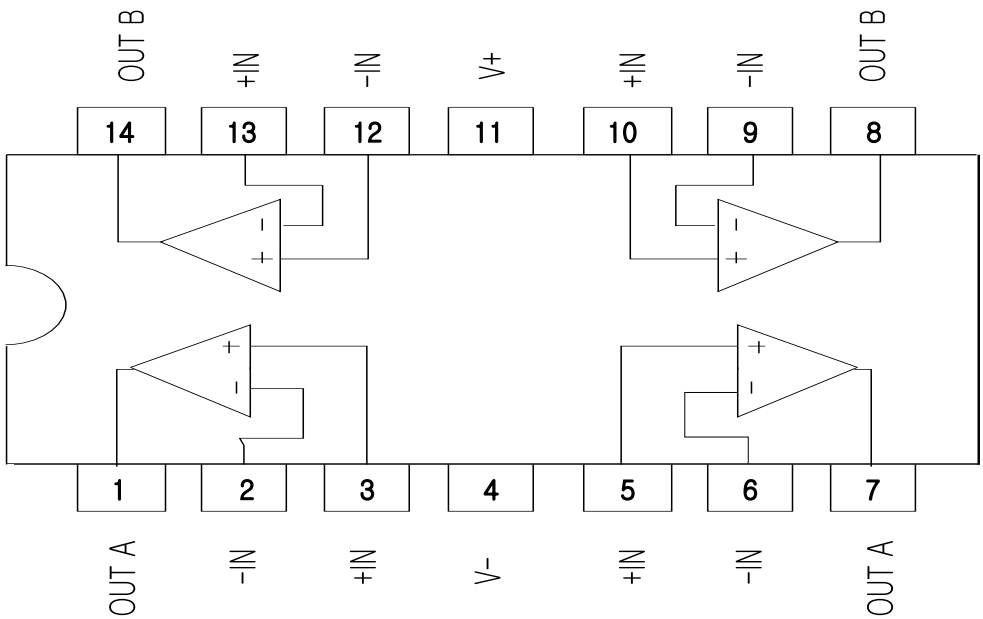


MAIN B'D : U106 (NJM13600D)

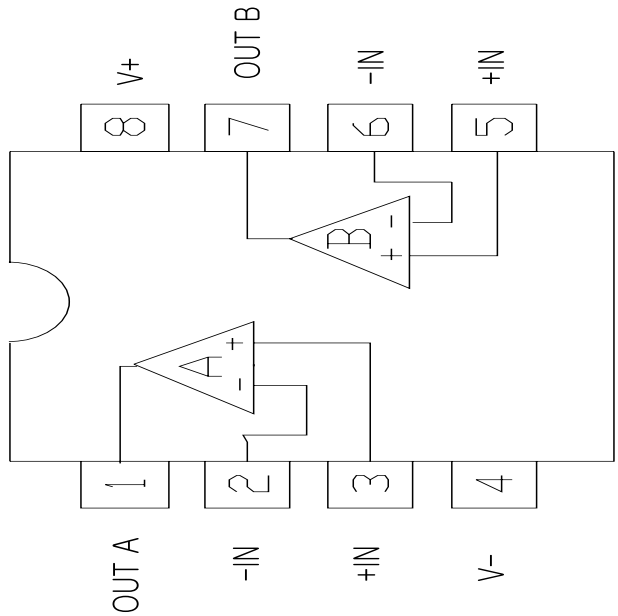


Integrated Circuit Diagrams

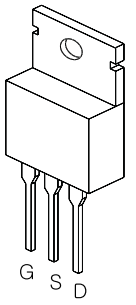
SUB B'D(PAS332-01) : U501 (TL074CD)

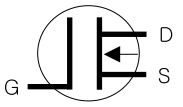


SUB B'D(PAS331-01) : U2,3 (KIA393F)

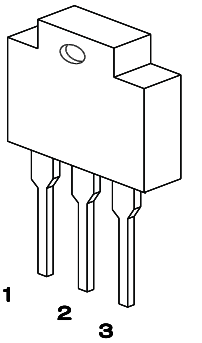


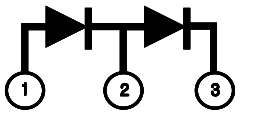
Transistor & F.E.T Diagrams



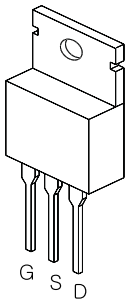


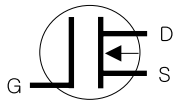
1RF3205
Q51,52,53,54,55,56,61,62,63,64
Q65,66



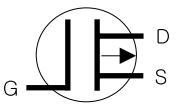


* YG225D2 *
D74,75,76,77

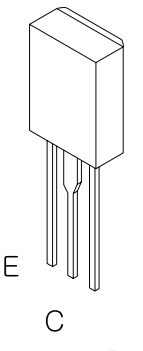


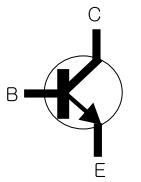


* IRF640N *
Q217,218,219,220
Q317,318,319,320

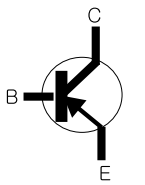


* IRF9640 *
Q211,212,213,214
Q215,311,312,313,314
Q315



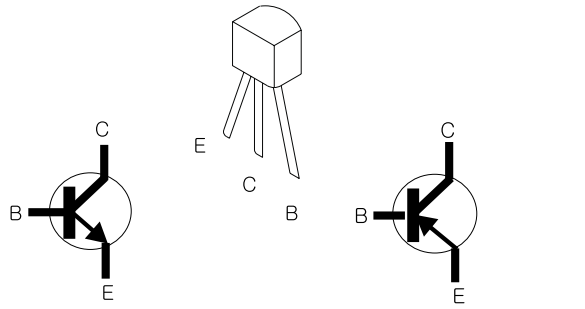


* KTC3503 *
PAS333-01 : Q201



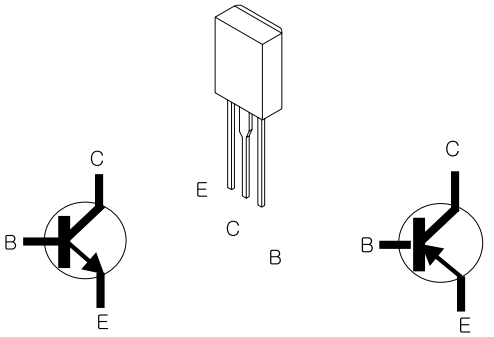
* KTA1381 *
PAS333-01 : Q202

Transistor Diagrams



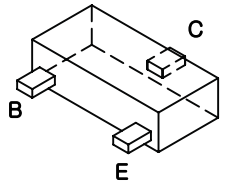
* KTC3198GR *
Q101,260,261,263

* KTA1266GR *
MAIN B'D : Q262
PAS333-01 : Q7,8,9,10



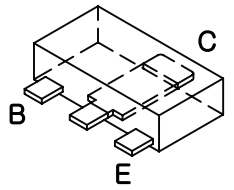
* KTC1027Y *
MAIN : Q270,271,401
PAS331-01 : Q1
PAS333-01 : Q203,205
Q207,209

* KTA1023Y *
MAIN B'D : Q402,403
PAS333-01 : Q204,206
Q208,210



* KTA1504GR *
PAS331-01 : Q3,4,5

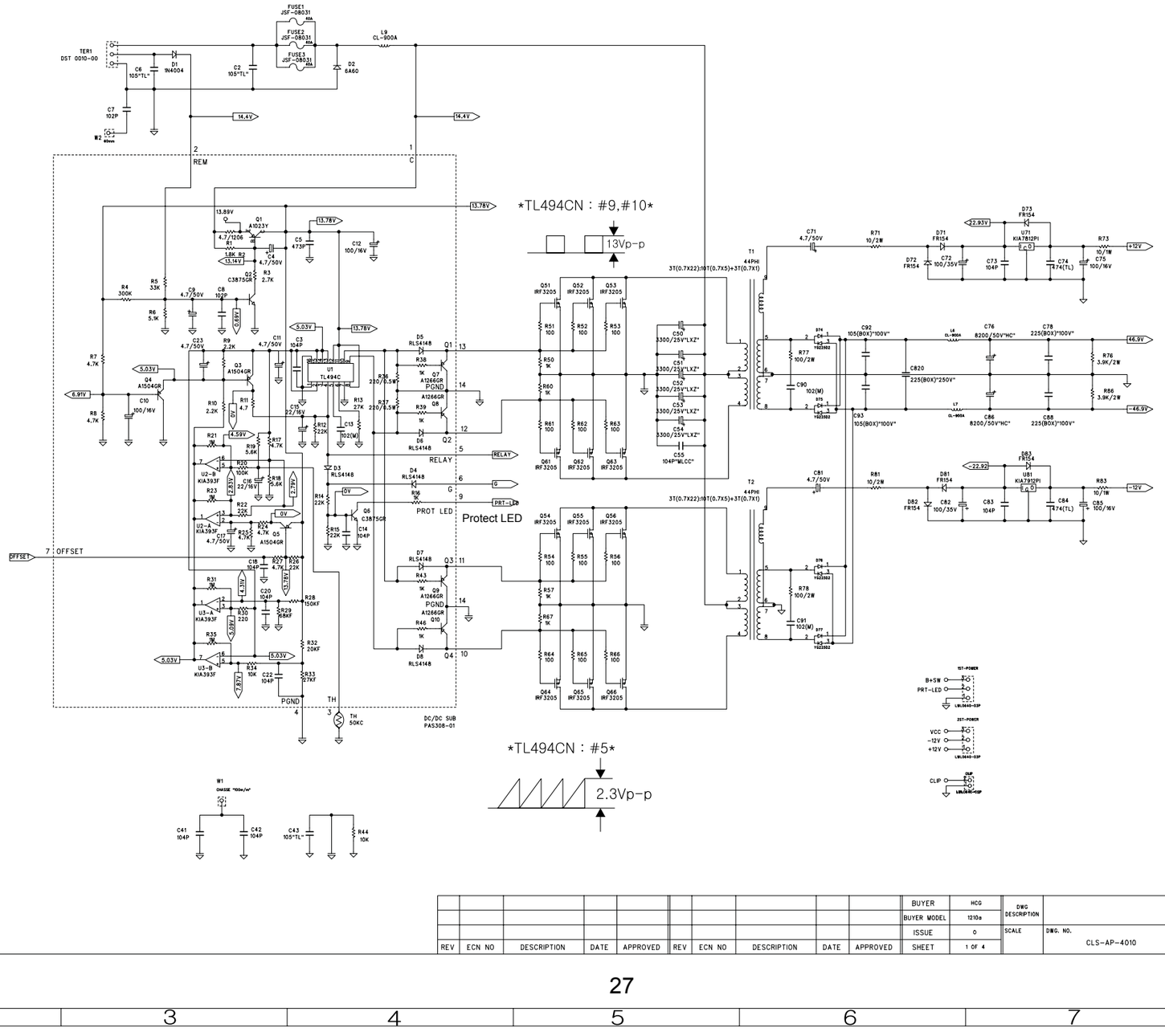
* KTC3875GR *
PAS331-01 : Q2,6
PAS332-01 : Q501



* KTC4373Y *
PAS332-01 : Q502

* KTA1661Y *
PAS332-01 : Q503

Power Amplifier (Sheet 1)

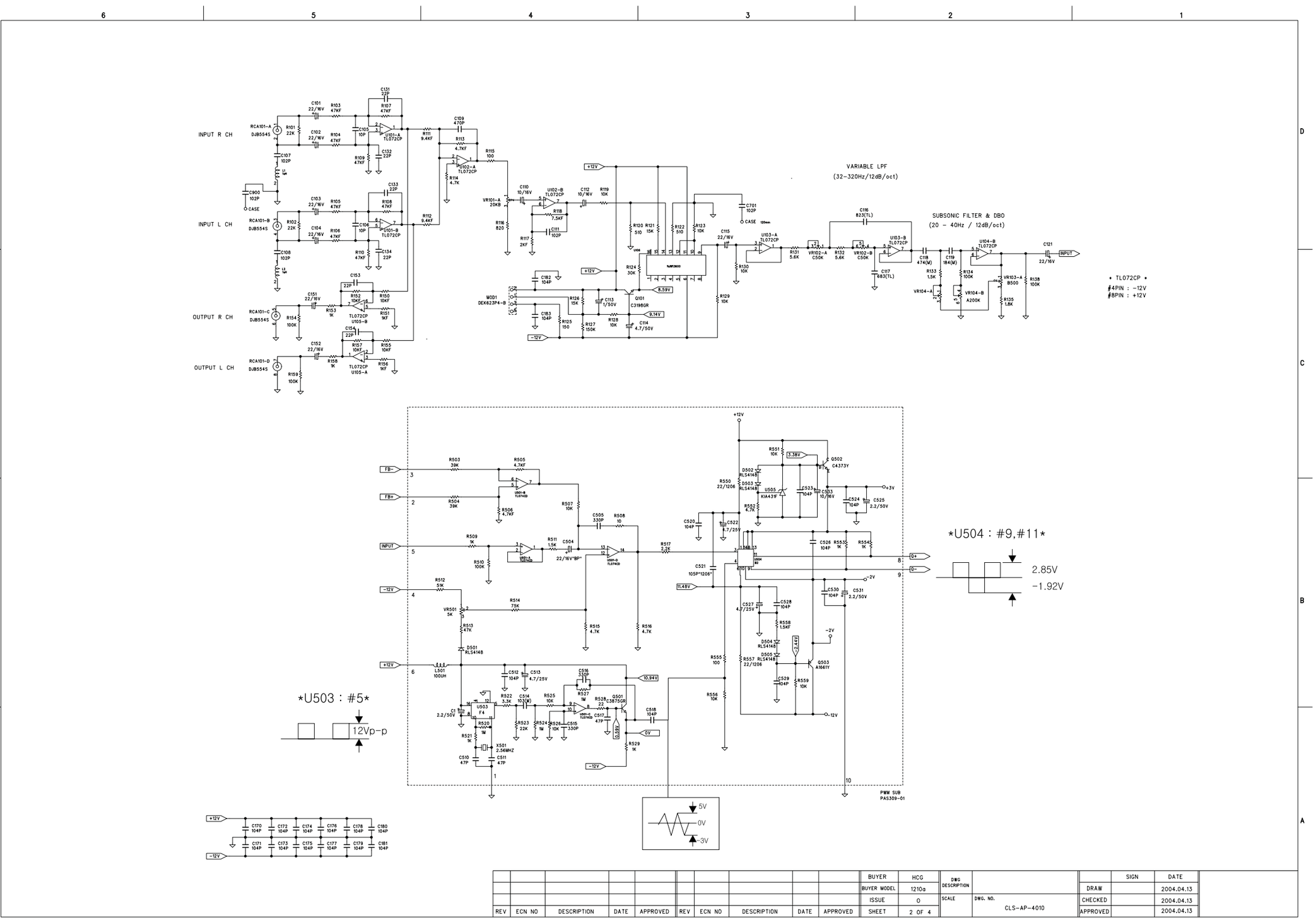


REV	ECN NO	DESCRIPTION	DATE	APPROVED	REV	ECN NO	DESCRIPTION	DATE	APPROVED

BUYER	HCG	DWG DESCRIPTION		
BUYER MODEL	1210a			
ISSUE	0	SCALE	DWG. NO.	CLS-AP-4010
SHEET	1 OF 4			

	SIGN	DATE
DRAW		2004.04.13
CHECKED		2004.04.13
APPROVED		2004.04.13

Power Amplifier (Sheet 2)



REV	ECN NO	DESCRIPTION	DATE	APPROVED	REV	ECN NO	DESCRIPTION	DATE	APPROVED

BUYER	HCG
BUYER MODEL	1210a
ISSUE	0
SHEET	2 OF 4

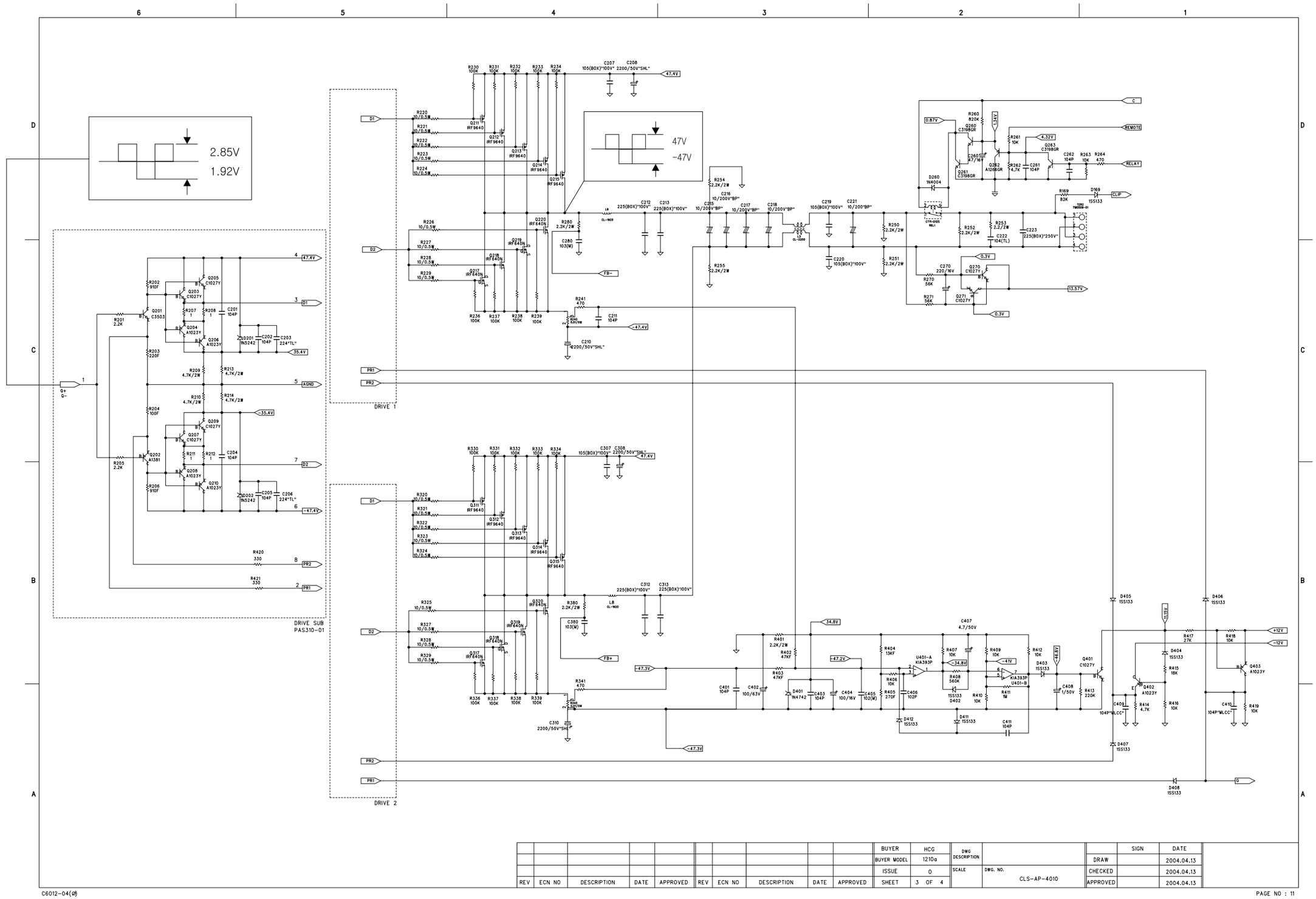
DWG DESCRIPTION		
SCALE	DWG. NO.	CLS-AP-4010

	SIGN	DATE
DRAW		2004.04.13
CHECKED		2004.04.13
APPROVED		2004.04.13

C6012-04(Ø)

PAGE NO : 10

Power Amplifier (Sheet 3)

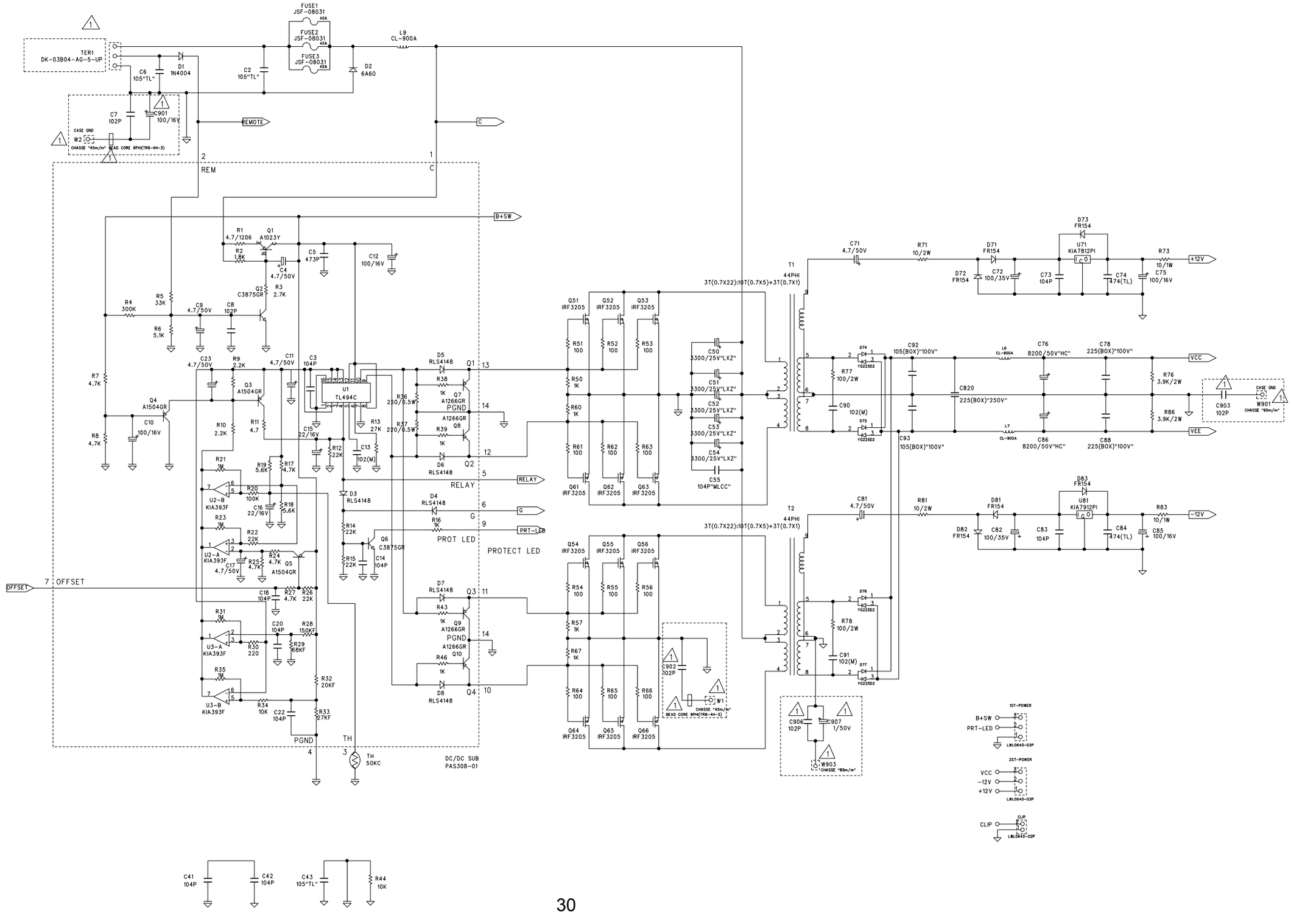


											BUYER	HCG	DWG DESCRIPTION			SIGN	DATE
											BUYER MODEL	1210a			DRAW		2004.04.13
											ISSUE	0	SCALE	DWG. NO. CLS-AP-4010	CHECKED		2004.04.13
REV	ECN NO	DESCRIPTION	DATE	APPROVED	REV	ECN NO	DESCRIPTION	DATE	APPROVED		SHEET	3 OF 4			APPROVED		2004.04.13

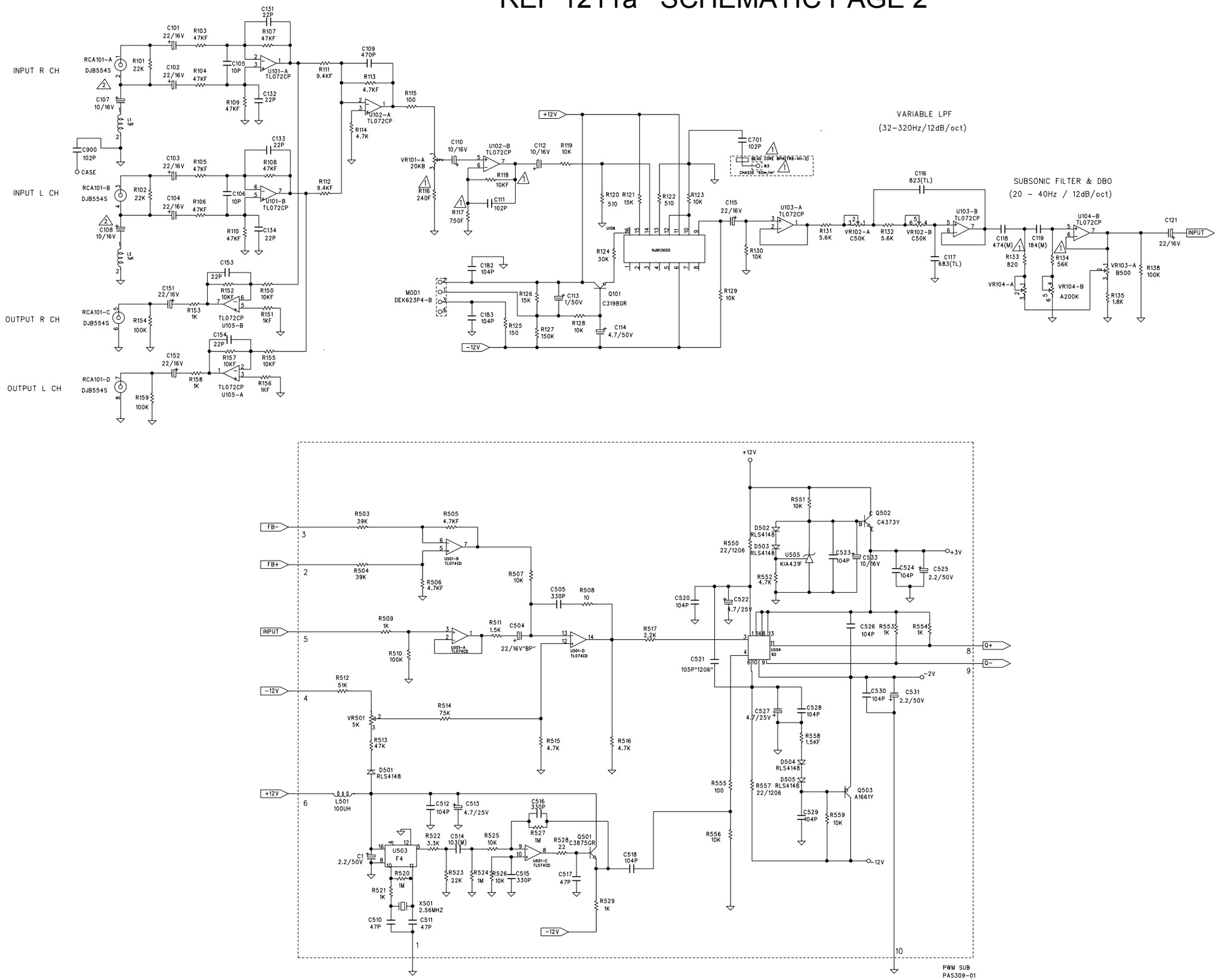
C6012-04(0)

PAGE NO : 11

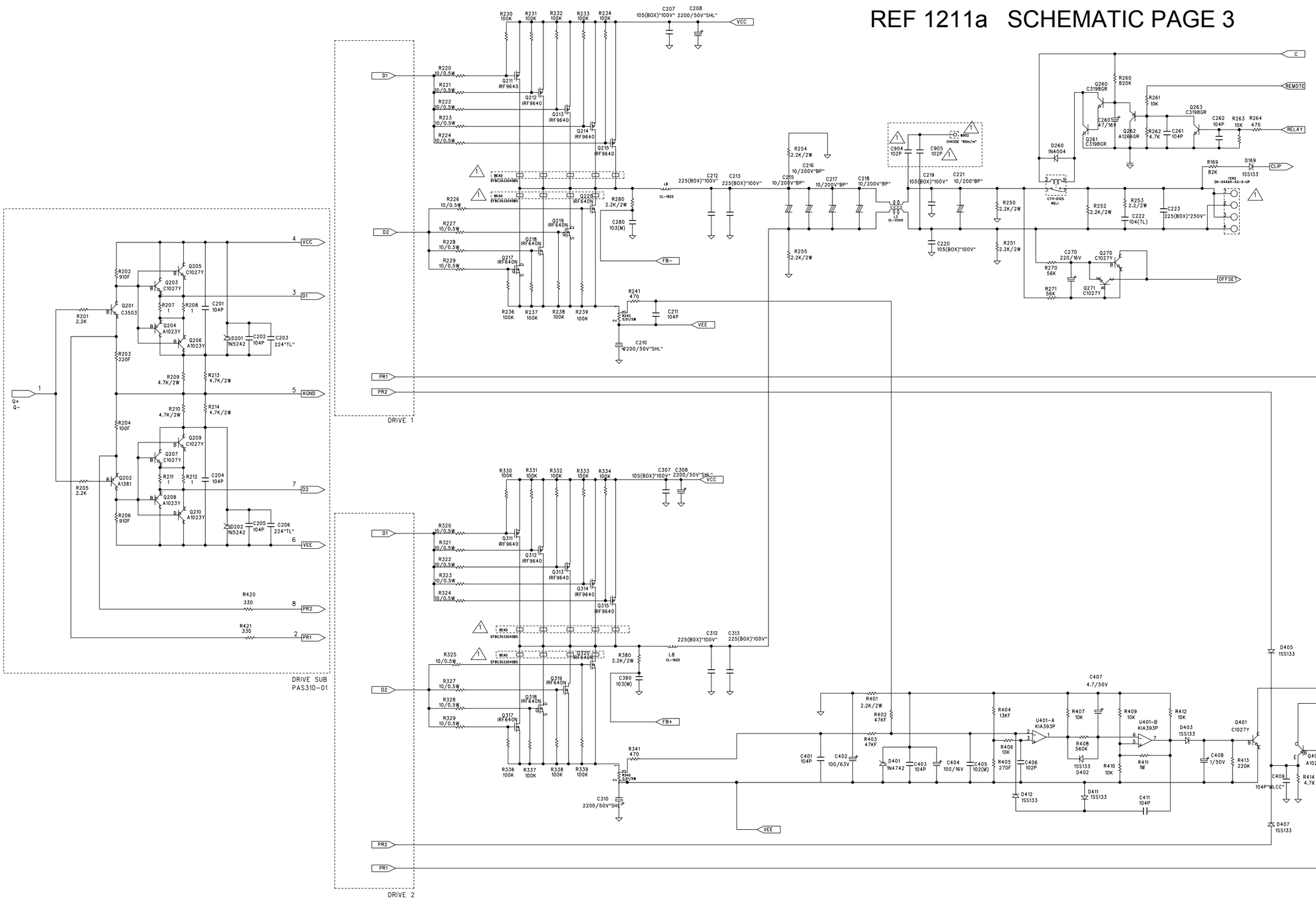
REF 1211a SCHEMATIC PAGE 1



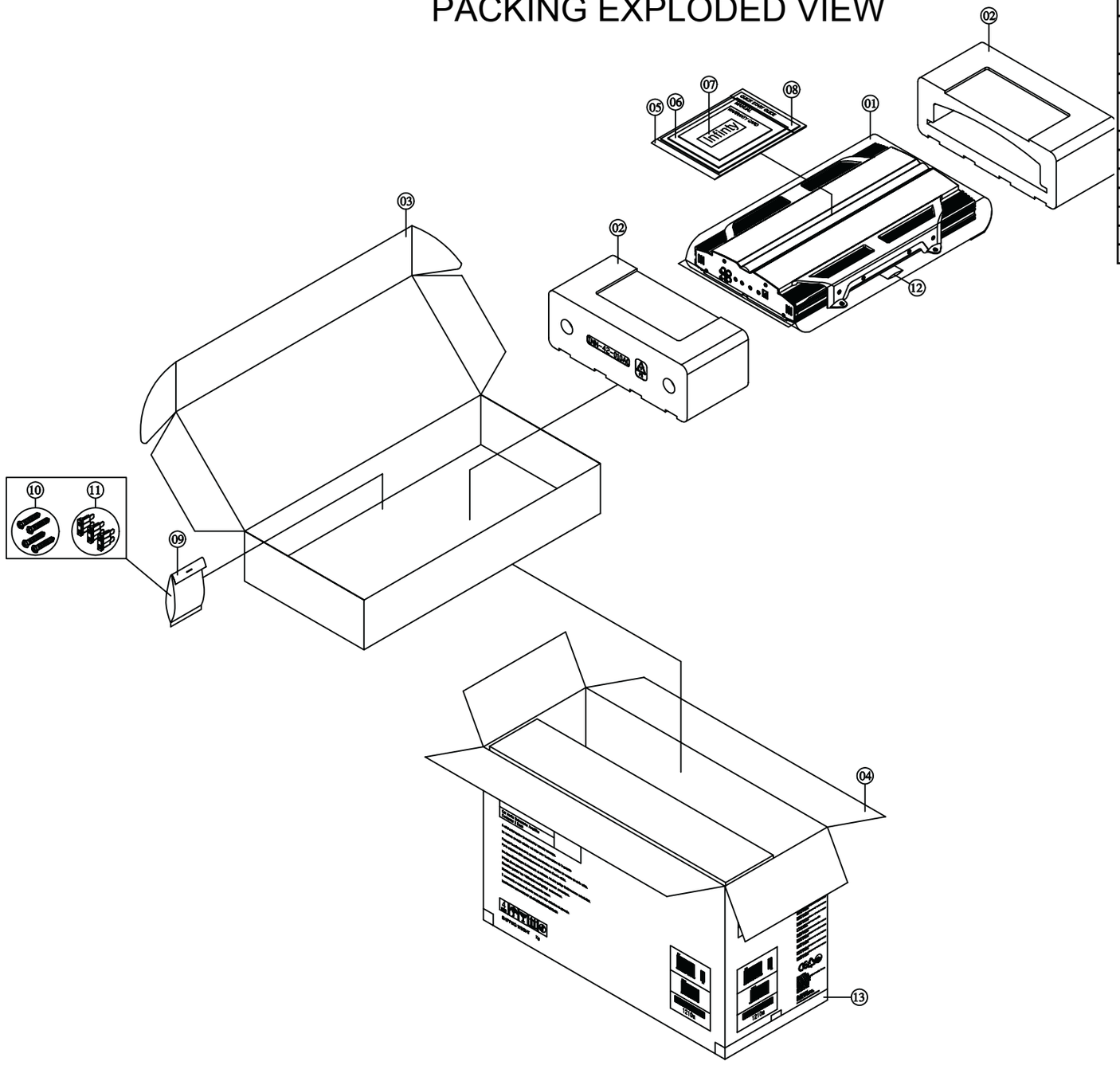
REF 1211a SCHEMATIC PAGE 2



REF 1211a SCHEMATIC PAGE 3



PACKING EXPLODED VIEW



NO	PART NAME	PART #	DESCRIPTION	Q'TY
01	POLY BAG(A)		VINYL, 650.0x400.0x0.1t	1EA
02	SNOW PAD	INN-42-010A0	EPS, 363.0x160.0x128.0	2EA
03	REF 1210a BOX-GIFT	BOX-36-152AB	SW#1(B), 620.0x368.0x133.0	1EA
	REF 1211a BOX-GIFT	BOX-36-152AY	DW#2, 635.0x286.0X393.0	1EA
04	BOX-CARTON		DW#2, 635.0x286.0X393.0	1/2EA
05	POLY BAG(B)		VINYL, 260.0x350.0x0.03t	1EA
06	REF 1210a OWNER'S MANUAL	MAN-01-0197A	ART PAPER	1EA
	REF 1211a OWNER'S MANUAL	MAN-01-0197Z	ART PAPER	1EA
07	WINDOW STICKER	LAB-00-0427A	"INFINITY" LOGO	1EA
08	QUICK START GUIDE	CAR-00-0061A	ART PAPER	1EA
09	POLY BAG(C)		VINYL, 80.0x100.0x0.03t	1EA
10	SCREW	SC4-NO-40250	STT1 OH 4x25 NI-P	4EA
11	AUTO FUSE	FUS-AT-00006	40A	3EA
12	SILICA GEL		3g	1EA
13	OPP TAPE	SUB-00-026A0	TRANSPARENCY	3.2m

GRD DIM	A	B	C
1 ~ 10	0.05	0.1	0.2
10 ~ 100	0.1	0.2	0.3
100 ~ 500	0.2	0.3	0.5
500 ~ 1000	0.3	0.5	1.5

THIRD ANGLE	UNIT	SCALE	DATE
	MM	1 : 1	2004.04.10

DRAW	CHECK	APPRO
H.Y.AN		D.W.SEO

MODEL	REF1210a
DRAW NO	
NAME	EXPLODED VIEW
CODE NO.	ISSUE Φ